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A self-study designed to aid the university in preparing for the eventual influx of students predicted for the next several years. The study is an overview of all phases of the university—objectives, enrollment increases and teacher shortage, organization of curriculum, administrative arrangements for instruction, faculty activities, intensive study of curriculum, and time-space utilization.

Among specific problems considered were the duplication and proliferation of courses, universitywide course requirements, the balance between liberal and specialized education, independent study, class size, the role of the department in policy decisions, the use of teaching aids, the role of the laboratory, library services, the student advisory structure, the academic year, distribution of faculty time, planning of faculty loads, productivity index, and the availability and use of instructional space.

As a result of its deliberations, the committee offered 53 recommendations.

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~~Dr. Poppendieck~~

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Final Report of the Committee on Academic Programs and Teaching Methods

September, 1960

ED000708

The University of New Hampshire and the Future

Final Report of the Committee on Academic Programs and Teaching Methods

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Introduction

Origin of the Study

THE impetus for the study of the University of New Hampshire's academic programs and teaching methods came originally from the Faculty Council and the Curriculum Committee of the University Senate.[1] Confronted by predictions of an explosive growth in student enrollment at the University in the near future, without proportional increases in faculty, these committees, meeting jointly during the academic year of 1958-59, reported to President Eldon L. Johnson on May 29, 1959, that "we must seek new concepts of teaching and improve the efficiency of our operations" in order "not merely to maintain our education standards but to raise them."

Since time was short — the first drastic increases in enrollment were but five years distant, according to projections made by the University staff — the committees proposed an immediate study of "every facet of our activities." Among the items the committees considered specifically germane to the study were teaching loads, size of classes, course proliferation within departments, duplication of subject matter, academic programs in low demand, sub-college-level courses, non-academic duties of faculty, teaching aids, the semester system, the rôle of laboratory work, the ratio between classroom instruction and credits, and the role of administrative personnel.

To accomplish this study, the two committees proposed a special faculty group which would be freed from teaching duties for a semester so that it could devote its full time to the investigation. This special group would, however, limit itself to the gathering of data which would then be made available to consultants employed by the administration to make policy recommendations to the President.

Favorably impressed by the two committees' report, President Johnson recommended to the Board of Trustees at its July, 1959, meeting that the report be implemented by the appointment of a six-member faculty committee representing the three colleges and the several academic fields of knowledge. The President proposed that two members of this committee be released from one-half of their teaching responsibilities for the fall semester of 1959-60 and the chairman be placed on a half-time basis for the full year. These three individuals were to comprise the working membership of the committee, charged with the task of collecting data and preparing the report, while the remaining members were to serve in an advisory capacity. It was further proposed that Miss Doris Beane, the Assistant for Institutional Studies in the Office of Student Personnel, was to assist the six-man group and that the committee's recommendations were to be reviewed, as necessary, by outside consultants. The date for completion of the report was set at June 30, 1960.

The Board of Trustees responded affirmatively to the President's proposals at its July, 1959, meeting, providing an original allocation of $12,500 from the income of the Spaulding Memorial Fund for salaries, consulting fees, and for publication of the report.[2] On July 23, 1959, the President announced that the Committee, to be known as the Committee on Academic Programs and Teaching Methods (CAPTM), would be headed by Allan A. Kuusisto, Professor of Government, and would include William H. Drew, Associate Professor of Agricultural Economics, and Helmut M. Haendler, Professor of Chemistry, as the other "working members". The three advisory members appointed were John B. Hraba, Associate Professor of Electrical Engineering, Ralph H. Cryesky, Assistant Professor of Languages, and Richard W. Schreiber, Assistant Professor of Botany. The Committee's general terms of reference were to be those established by the two recommending committees in their May 29 memorandum, although the study group was authorized to make further delimitations in the scope of the study if it deemed this necessary.

The Committee's Frame of Reference

The immediate task confronting the newly formed Committee on Academic Programs and Teaching Methods was to define the scope and nature of the problem it had been given. Since the instructions contained in the May 29 memorandum represented the outer limits for the study, it was patent that the Committee's assignment would have to be focused on academic adjustments to the enrollment explosion. The assignment did not, therefore, include a study of admissions policies, no matter how critical changes in these might be for the future development of the University. The Committee simply assumed the continuation of present admissions policies and the enrollment projections based on these policies which had been prepared by the administration. Furthermore, the study did not include a survey of the over-all financial resources of the University, although this facet of the picture also loomed as a formidable variable in planning for the future. The over-all planning of the University's development must ultimately involve an integration of admissions, academic, and financial aspects of the institution. In this respect, the Committee looked on its function of surveying the academic variable as one part of a larger survey and planning effort that the University will have to undertake.

The Committee's limitation of its study to the academic dimension of the University's future still left it with a wide area for study, an area clearly too broad for comprehensive examination in one academic year. It was, therefore, vital to ascertain what area of the academic picture appeared most urgently in need of study and, simultaneously, most manageable by the Committee. On the one hand, there was a genuine fear of trying to cover too much ground, which would not only lead to an overextension of resources but would, most likely, result in a superficial view of the problem. On the other hand, there was the opposite risk of not doing enough, of extracting just one phase of the problem without relating it to other phases which impinged on it and affected its nature.

---

[1] The Faculty Council membership for 1958-59 included Allan A. Kuusisto, Chairman, John A. Hogan, Secretary, Oswald T. Zimmerman, Harold I. Iddles, Avery E. Rich, and William W. Smith. The Curriculum Committee members were Marion C. Beckwith, Chairman, E. H. Stolworthy, B. R. Kay, Gordon L. Byers, and Richard G. Strout.

[2] The Board of Trustees amended its action in January, 1960, to increase the allocation of the Spaulding Fund income for the Committee to $18,000 and to continue Professors Haendler and Drew on a half-time basis through the second semester. The date for completion of the report was changed to September 15, 1960.

The Problem Areas and Procedures

Following extended discussion during August and September of 1959, the Committee decided to concentrate its efforts on faculty activities, the curriculum, and the utilization of time and space. These three problem areas appeared to cover in good part the designated areas for study outlined in the May 29 memorandum. Furthermore, they were conducive to separate study, an important consideration in dividing the workload of the Committee, but they were also so interrelated in nature that the separate studies could ultimately be dovetailed in seeking recommendations for the University's academic future.

Individual responsibility for the three areas of study was allotted as follows: Professor Haendler, assisted by Miss Beane, the time-space utilization study; Professor Hraba, the faculty activities survey; and Professors Drew and Kuusisto, with the cooperation and full participation of all members of the Committee, the curricular study.

With the decision to divide the investigation into three areas, the Committee concentrated next on methodology. Once again the criteria of manageability and effectiveness had to be met. Since the Committee members had no previous professional experience in institutional research, they invited Dr. John Stecklein, Director of the Bureau of Institutional Research at the University of Minnesota, a foremost authority in the field, to advise them in setting up their investigative procedures. The procedures which were ultimately adopted and which will be outlined in subsequent chapters, varied with the peculiarity of the three research areas, but, in all cases, they were recognized, professionally-endorsed procedures tailored to meet the rigid restrictions on time and manpower under which the Committee was to labor.

The Committee devoted the first half of its allotted year (and portions of the second half) to procuring data. The faculty and administration were bombarded with questionnaires and interviews. The Student Senate was drafted to aid in eliciting student opinion on the curriculum. Classrooms and laboratories, in use during the fall semester, were subjected to scrutiny by tape measure. Past registration records were investigated. Studies and experiments in other institutions were examined for insights. When advisable, visits were made to institutions which had been or were currently involved in studies of a similar nature. Visitors to the campus, brought here for other purposes, were subjected to interrogation when it was known that they had experiences or opinions that would be useful. Among the Committee's "windfall" consultants were Professor W. H. Cowley of Stanford University and Professor Norbert Wiener of Massachusetts Institute of Technology.

Ultimately, as the year wore on and the data became available, the Committee, via President Johnson's good offices, brought four nationally known consultants to the campus to meet for day-long (and sometimes longer) sessions with the Committee. These outside experts were Professor C. R. Carpenter, Director of Institutional Research, Pennsylvania State University; Dr. Philip H. Coombs, Secretary, The Fund for the Advancement of Education; Dr. Earl McGrath, Director of the Institute of Higher Education, Teachers College, Columbia University, and former Commissioner of Education of the United States Government; and Dr. Paul L. Dressel, Director of Institutional Research, Michigan State University.

Acknowledgements

The Committee is grateful to all of the individuals, whether mentioned above or simply incorporated anonymously in a bigger grouping (the faculty, students, and administration, for example), who gave of themselves to make the study possible. It herewith acknowledges its huge debt to these contributors; their contributions, whether in interviews, questionnaires, or in coffee breaks, added to the fund of information and insights which the Committee has drawn upon in making this report. The Committee's typists and researchers also deserve our deep thanks. We would probably never have assembled the data and put the report in its present form were it not for the help of Mrs. Shirley Worster, Mrs. Betty Laramie, Ethel Bushey, Jean Clement Turner, and Linda Jean Lawrence. Needless to say, the data and recommendations contained in this report, complete with frailties, remain the responsibility of the six-man study group that conducted the study and drafted the report.

The ensuing report provides not only data but recommendations for changes wherever such appear to the Committee to be desirable. In making these recommendations the Committee actually strays from the intent of the May 29 memorandum, which suggested that outside agents make the recommendations. The Committee members agree that outsiders ideally make more objective analysts, since they are beyond campus politics and thus have no axe to grind nor any empire to protect. However, consultants, while objective, lack appreciation of the unique context of the UNH situation, a singularly important consideration which all of the Committee's consultants noted. Practically, therefore, the Committee has assumed the task of evaluating its own data, circumscribed in this by its consultants' suggestions and its own sincere and conscientious effort to be as objective as is possible for normal earth-bound faculty mortals. The Committee has not always achieved unanimity. Different alternatives, therefore, may be indicated. The Committee suggests that the reader not ignore these.

The Future Course

The Committee does not predict what changes will be affected as a result of this report. It hopes that the facts and ideas contained herein will at least compel some serious faculty consideration of its future, even if the specific recommendations by the Committee are not accepted in the form contained here. The six men who comprise the Committee are, after all, faculty members. They are fully aware of the strong status quo orientation of faculties, but they also believe that the faculty will make changes to ensure that its crucial job will be carried out at least as well in the future as it has been in the past.

The responsibility for effecting changes to meet the new circumstances is not entirely a faculty responsibility. The administration is also involved. Some of the recommendations for change fall within the area of administrative authority, such as ultimate decisions regarding use of time and space. The majority of changes, however, call for administration-faculty cooperation. The task of preparing for the future is thus a shared responsibility which is, after all, in the best University of New Hampshire tradition.

PART ONE

Chapter 1. The University's Objectives

AN appraisal of the present and future status of the University's academic resources assumes an underlying set of University objectives.

The University is one of sixty-eight land-grant institutions in the fifty states and Puerto Rico. Its objectives reflect its origin as a state institution under the Morrill Act of 1862.[1] The University's interpretation of this Act has led it to the attempt to provide a breadth of educational opportunity and service for the citizens of New Hampshire, whether on or off campus. This attempt has continuously modified the University's objectives during its evolution into a modern public institution.

The major objectives of the University of New Hampshire appear to be these:

A. Provision for realization of a liberal undergraduate education, i.e., an education which, to cite Earl McGrath, has three primary purposes:

> (1) to provide that comprehensive body of knowledge in the major branches of learning — the physical sciences, the social sciences, and the humanities, including the fine arts — without which the individual may be victimized by his own ignorance or by those who seek to bend his actions to their own purposes,
>
> (2) to cultivate the skills of reasoning and communication required to attack a new problem effectively, to order the relevant data, and to express by voice and hand the results of these intellectual activities, and (3) to nurture the traits of mind and spirit characteristic of those who have achieved a consistent view of themselves and the complex physical and social world in which they live.[2]

B. Provision for professional undergraduate training programs which prepare the student to function competently in a particular vocation.

C. Provision for graduate instruction.

D. Provision for faculty research and scholarship.

E. Support of off-campus instruction and service.

The Relationship of Programs to Objectives

All of the University's programs meet one or more of its objectives. However, whether or not the varying objectives are served in a balanced way is not easily discernible from ordinary observation.

A scrutiny of the University catalogue reveals that colleges and departments have committed themselves in varying degrees to the objectives of a liberal undergraduate education. Attempts to provide the components of a liberal education are, however, over-shadowed in all three colleges by an emphasis on professional undergraduate training.

A survey of course descriptions or of over-all programs does not provide first-hand evidence of what the educational result may be. To cite Earl McGrath: "The character and the quality of any instruction must be determined by its specific purposes, by its relation to the whole context of learning, and by the methods employed by the teacher in teaching and by the student in learning. If all professional curricula are examined with these purposes in mind, new programs can be designed to cultivate simultaneously the varied knowledge, skills, and attitudes characteristic of a particular profession and that broad and generous education which is the hallmark of a cultured and intelligent human being."[3]

The sharp dichotomy between the liberal and professional programs which McGrath feels has prevailed to the detriment of American higher education in the past half century need not exist and should not exist. Since the two types of approaches are both integral to university education in a mid-twentieth century context, the intertwining of them in balanced programs seems mandatory to the realization of the University's objectives.

Linked to teaching objectives are faculty research and professional development.[4] Such work is the chief avenue by which an alert faculty continues to remain competent and informed of developments in a changing world. A faculty grows in competence through its efforts to complement teaching with research and professional development.

There is no comprehensive formula that permits easy determination of the relative importance of research and professional development in terms of other objectives. The activities of individual faculty members will call for differing ratios among teaching, research, and professional development. There should, in any case, be increased efforts to ensure that opportunities for research and professional development, as well as opportunities for teaching, are shared as widely as possible. The University's expectations of faculty research and professional development should be supported by policies which will encourage these activities.

State and national problems exert considerable influence upon the University research program. The Federal Government has expanded its role in furnishing funds for scientific research and development at colleges and universities. Such funds should be regarded as support of research in the interest of the progress of science, not as a legitimate and expected part of the University's operational expenses.

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[1] Under the Morrill Act, the states were specifically obliged to establish and endow "at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts, in order to promote the liberal and practical educatiion of the industrial classes in the several pursuits and professions of life."

[2] Earl J. McGrath, *The Graduate School and the Decline of Liberal Education*, The Institute of Higher Education, Teacher's College, Columbia University, 1959, pp. 1-2.

[3] Earl J. McGrath, *Liberal Education in the Professions*, The Institute of Higher Education, Teachers College, Columbia University, 1959, vi.

[4] Research is defined as all experimental and creative effort of an original nature. Professional development is defined as scholarly effort designed to increase an individual's competence in his field.

There is no question as to the desirability of outside research support, since it furthers the University's objectives. It must continue to be the University's responsibility to expand the support and encouragement of personal research, research undertaken "for the fun of it". There is also a continuing need to ensure a balance of commitments to guarantee that teaching does not become subordinate to research.

The University's commitments to off-campus instruction and consultation are frequently relegated to a role subordinate to research and teaching on campus. In a real sense, the entire state is the University's campus. The University's responsibilities to this larger campus are as relevant to its objectives as are the activities carried on in Durham. The persistent problem of balanced commitments, therefore, must consider the extension area. The University must continue to offer extensive public service throughout the State if it is to remain true to its basic charge. This involves alertness to the needs of the several industrial, consumer, and civil segments of the state for education, research, and consultation. There is a vital need for communication between the resident scholars of Durham and extension personnel to promote understanding of their common objectives.

The complex relationships between University programs and objectives clearly present a major problem for those entrusted with responsibility for the University's future welfare in a period of increasing strains and pressures.

Guidelines for the Future

The Committee offers the following guidelines for consideration in future efforts to maintain objectives and programs in sound relationship:

1. The University should be thoroughly committed to providing a liberal education for all students.

2. The University should provide professional programs which are defensible in terms of the present and future needs of both the state and national communities. These programs must, however, constantly be reviewed to ensure their continued adaptibility to changing circumstances.

3. An individual course is most realistically evaluated in terms of its role in the over-all program which it serves.

4. The University's teaching programs should be within the scope of its available resources. The University has to gear its offerings to a set of priorities; it cannot offer everything to everyone. The priorities, in turn, must be established with a view toward some balance among various fields of knowledge.

5. Research and professional development belong in the mainstream of faculty activities along with teaching. Faculty members should have the opportunity to engage in all three of these activities.

6. The availability of outside research grants should not preclude thought about a balance between teaching and research. The University is not a research center *per se*, and a drift toward such should be resisted.

7. The University must make an effort to guarantee that the extension services to the state will not be overlooked, in the face of increasing pressures on the main campus.

Chapter 2. Enrollment Increases and Teacher Shortages

THE University's need to adjust to coming enrollment increases and teacher shortages is the rationale for this report. A brief discussion of the admissions picture at the University and of nation-wide faculty recruitment trends will perhaps serve a useful purpose.

Admissions

This Committee was not concerned with an appraisal of the admissions policy *per se*. In order to evaluate objectively the future needs of the University the Committee did consider it essential that a general indication of future enrollment be obtained. Drs. Carpenter and Coombs also stressed the importance of this information.

The University has an obligation to permit qualified residents of the state to earn a degree. Students in the upper two-fifths of their high school graduating class are in general the only ones eligible for entrance into the four-year resident instruction program of the University. Students not meeting this requirement may take tests to prove their eligibility. This admissions policy is somewhat in opposition to the philosophy of those land-grant colleges which admit any student who graduates from a high school within the state. The admissions office feels that the latter policy would be an extremely expensive one in terms of the cost of producing college graduates. Many students who would enter college under the latter requirements would ultimately fail.

During 1959-60, 31 percent of the total freshmen were non-residents as were 30 percent of the sophomores, 23 percent of the juniors, and 28 percent of the seniors. This is one of the highest percentages of non-residents that the University has ever had. The specific statutes enacted by the Legislature in 1949 (and still in effect) are:

1949 224:1

1. Percentages. The number of students enrolled in the University of New Hampshire from residences outside the state in any one year shall not exceed fifteen percent of the maximum capacity for regular undergraduate students at the University as determined by the Board of Trustees.
2. Limitations
   Suspensions. The limitation on out-of-state enrollment at the University may be suspended by vote of the Board of Trustees of the University whenever said Trustees find that such suspension will benefit the state and University without impairing the opportunity for qualified students of the State of New Hampshire to attend the University, provided, however, that such suspension shall be made for not more than one year at a time, but may be continued from year to year upon vote of said Trustees.

These limitations as established were not to pertain to applied farming, summer school or graduate school, and in 1953 exemptions from the limitations were also provided for "students attending the University pursuant to reciprocal agreements and contracts with other educational institutions." 1953 43:1.

Out-of-state admissions apparently serve as a buffer between the capacity of the University and the number of qualified applicants from within the state in any given year. Total enrollment is therefore jointly dependent upon the in-state demand for college education and the availability of classroom and dormitory space in the University.

Future non-resident enrollment is considered in a recent report prepared by the Director of Admissions. "Beginning with the year 1964 a substantial increase in in-state admissions is expected. Some basic policy decisions with regard to non-residents will undoubtedly be needed. These might well be approached then in the light of University capacity, resident enrollments, the recognized desirability of including non-residents in the student body, and the moral obligations of the University to sons and daughters of alumni who come from states outside New Hampshire." It would seem, therefore, that non-resident admissions will begin to decline about 1964-65.

Several sets of enrollment projections are now in the office of the Director of Admissions. The two most important ones were projections made by a committee headed by Dr. Everett Sackett and a projection made by Professor Owen Durgin. For the four years since these estimates were made the "medium estimate" presented by Professor Durgin sems to be most accurate for in-state freshmen admissions. Both projections indicate a gradual increase in freshman admissions until the academic year 1964-65, when enrollments are expected to jump considerably from the level of the previous year. They are then expected to increase at a more rapid rate until 1970, when estimated in-state freshman admissions at the University will be 1,250, according to Professor Durgin's medium estimate.

Attached to this report[1] is a copy of Professor Durgin's medium estimate, which on the basis of the past four years' experience seems to be the best estimate of future enrollment available. The basic assumptions involved in this estimate are:

1. That the University of New Hampshire will divide prospective in-state college students equally with private institutions.

2. That the attrition rate will be 20 percent.

3. That 14.5 percent of the University's entire enrollment will include categories other than undergraduates.

4. That until the University's total in-state enrollment reaches 3,500, the average number of out-of-state undergraduates on campus will be 850. After total in-state enrollment reaches 3,500 (the academic year 1966-67), out-of-state admissions will be somewhat more limited and the University will probably have to adhere to the currently existing "15-percent rule", which can be waived from year to year.

Professor Durgin's estimates are therefore based upon the following premises:

1. Total enrollment will be a function of in-state demand.

2. After total in-state enrollment reaches 3,500, out-of-state enrollment will be limited to 15 percent of total enrollment.

3. Categories other than undergraduates will be constant 14.5 percent of total enrollment.

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[1] See Appendix 4.

Thus by 1970, we can expect to have a total of about 5,000 students at the University, according to Professor Durgin's medium estimate. Other predictions range from 4,400 to 7,000[2] students. With this degree of variation in estimates it is obvious that it would be somewhat difficult for this Committee (or any other one) to try to plan a future building program solely on the basis of future enrollments.

Teacher Shortages

Closely associated with increasing enrollment is a growing shortage of college teachers. *The President's Committee on Education Beyond the High School*[3] has stated that 15,000 to 22,500 new college teachers will have to be recruited annually during the next decade to meet instructional requirements of colleges and universities.

The supply of new doctoral degree holders, who are generally considered the most desirable candidates for college teaching, is insufficient to keep pace with present demand. It is estimated that only about 5,000 of the approximately 9,000 persons receiving doctorates annually are going into college teaching.[4] This deplorable condition will become worse if recent decreases in the numbers of Ph.D.'s being awarded and the proportion of these going into college teaching continue.

The growing short supply of doctoral degree holders is but one part of an over-all shortage of qualified college-level teachers regardless of degrees. A recent survey of nearly a thousand universities, colleges, and junior colleges by the National Education Association revealed almost 1,300 unfilled teaching positions.[5] Nearly all of the 70 state universities surveyed reported current shortages in qualified teachers in the fields of engineering, mathematics, home economics, business, and health sciences. Forty-four of these universities expected similar shortages in the physical sciences, social sciences, or education.

The Economic Welfare Committee of the local chapter of the American Association of University Professors, in its report of December, 1956, noted that the University was hiring faculty with less experience at salaries equal to or greater than those of their predecessors. In some instances, the University was unable to find candidates to fill vacancies. Salary scales were in large part to blame, but this deficiency was aggravated by a shortage of candidates.[6] Informal discussions with deans and department chairmen indicate that the difficulty of filling vacancies has become a chronic problem.

What are the prospects? Dr. Coombs has written:

> Even with great improvement in faculty compensation . . . the manpower problem of the colleges and universities will be f[illegible] from solved; it may simply get worse at a slower ra[illegible] . . The graduate schools will undoubtedly enlarge their output, though probably much less in the next five years than from 1965 to 1970. But as things presently stand it seems highly improbable that they will expand nearly fast enough to keep up with the needs of the colleges. The colleges as a whole are likely to find themselves, despite higher salaries, increasingly unable to fill their ranks with first-class teachers, especially if they try to preserve today's student-teacher ratios as enrollments expand.[7]

Colleges and universities have at least four courses of action they can adopt to adjust to the situation discussed above. First, they can seek a greater breakthrough than is now expected in graduate school expansion. This, however, involves additional financial resources and manpower for graduate programs. Unless dramatic new sources of support are found, the money and teachers for these expanded graduate schools will probably be found only at the expense of undergraduate programs.

Second, colleges and universities can generally lower standards for college teachers. Indiscriminately applied, this particular alternative would undoubtedly impair the quality of university education in the country. It is possible, however, to increase the proportion of non-Ph.D.'s on a faculty without impairing quality, provided care is taken to select faculty who have demonstrated intellectual capacity and teaching talent.

Third, admissions qualifications can be tightened. While private institutions may well consider this alternative seriously, public institutions devoted to providing breadth of educational opportunity should not close their doors to students who meet ordinary requirements for admission.

Fourth, colleges and universities can seek ways and means of enabling teachers to serve more students. This involves reappraising curricula and faculty use with a view toward ascertaining where adjustments can be made to amplify the work of first-class teachers. Subsequent chapters of this report are concerned in part with this fourth alternative.

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[2] Predictions based upon data from the American Council on Education indicate a possible enrollment of 5,000 in *1965*.

[3] *The President's Committee on Education Beyond the High School*, Second Report to the President, U. S. Government Printing Office, Washington, 1957.

[4] *Ibid.*

[5] *Teacher Supply and Demand in Universities, Colleges, and Junior Colleges, 1957-58 and 1958-59.* Higher Education Series, Research Report R 10, Washington, 1959.

[6] Bulletin No. 8, Economic Welfare Committee of the University of New Hampshire American Association of University Professors, December, 1956. pp. 1-2, and Appendices II, III, IV, V, and VI, pp. 7-8.

[7] Philip H. Coombs, "An Economist's Overview of Higher Education", in Dexter M. Keezer, ed., *Financing Higher Education*, McGraw-Hill, New York, 1959, p. 19.

Chapter 3. Organization of the Curriculum

CURRICULUM problems are the most persistent and probably the most important of all problems in a university. They are not only important in themselves, but they impinge directly on all operations of a university. The curriculum, which is defined herein to refer to the whole body of courses offered in an educational institution as well as those offered in its sub-sections (colleges, divisions, and departments), clearly influences the kinds and numbers of students the University attracts and then ultimately graduates. The curriculum further influences the type of faculty member the University recruits to teach its students, the amount and type of physical facilities that are needed for classroom and other purposes, and the nature of the administrative superstructure. These all, in turn, ultimately determine the funds required for successful operation.

The shaping of the curriculum is first and foremost a faculty matter; the faculty, collectively and separately in its various administrative sub-sections, is in a key position to determine the amount of financial outlay needed to operate the University. Legislative appropriations and state budgetary allotments for the University, as well as student tuitions, are directly or indirectly influenced by the numbers of courses and programs the faculty feels it needs to meet its academic objectives. This point is made, not to meddle with the faculty's prerogatives, but to remind faculty members that curriculum matters set a frame of reference for other considerations, including their own salaries, which the faculty normally considers to be matters divorced from a discussion of courses.

Curricular reorganization efforts have varied from comprehensive, all-encompassing changes to gradual changes. Whether the changes should be abrupt or gradual depends on the institution's appraisal of how well adapted it is to meet student needs in the future. However, there is much to be said for gradual changes which would enable the institution to keep pace with a changing society without destroying past traditions. It is unlikely that revolutionary changes would, in any case, establish the always pursued but ever elusive ideal curriculum. Changes occurring in both technology and the social order would probably frustrate even the best laid schemes in a relatively brief period. In any event, to refer to an earlier point, curricular changes must be considered in context with other matters, ranging from students to funds, and this interrelationship would probably call for an emphasis on gradual change.

The appraisal of a curriculum is subject to many pitfalls. Appraisers must balance professional and liberal courses, undergraduate and graduate courses, general and individual student needs. Perhaps the greatest difficulty in evaluating a curriculum is the subjective nature of the criteria which must be used. This factor alone makes the prospects for complete agreement on curriculum difficult. It was in the face of these complications that the Committee approached the analysis of the University's curriculum.

In this chapter, the Committee considers the role of such existing University-wide requirements as English 1-2 and the general physical education courses and of new possibilities, including enlarged core curricula, core courses, and independent reading. It also discusses the status of remedial courses, the over-all number of courses, and the duplication and proliferation of courses.

Course Offerings at the University

The establishment of a major program signifies acceptance by the University of the responsibility to provide adequate training in that field. The requirements for such training change from year to year. Ideally, the course offerings in the University should reflect these changes. Continual review of course offerings should be standard policy at the departmental level and higher.

The 1958-59 University catalogue lists a total of 1,435 courses. Whether or not this number is too high cannot be answered objectively at this time. On a purely subjective basis the Committee feels, however, that it is. A course, regardless of the enrollment, should be offered if it is important to the program. The initial decision should be at the program level. Within a program, course listings should be reviewed very carefully in connection with an over-all attempt to reduce the number of courses offered. Some universities limit the number of courses listed for a program in terms of the number required for a major, exclusive of service courses. This ratio has been variously suggested as 2/1-1.5/1.

Since complete descriptions of courses are not available at the University, one must depend on the brief course descriptions appearing in the catalogue. Such dependence makes realistic value judgments impossible. The Committee feels that there is a need for syllabi of each of the 1,400-odd courses listed in the University catalogue in order to evaluate objectively such matters as course duplication and course proliferation. If these syllabi were available, it should be possible to reduce materially the number of courses. Perhaps the requirement of a syllabus for each course may in itself substantially reduce the number of courses listed in the catalogue.

Dr. Carpenter offered the following comments relative to syllabi: "You can't analyze course duplication by talking about courses and catalogue descriptions. You have to have accurate syllabi. . . In a good syllabus, order is given to a course. . . I think it allows plenty of latitude for style and individual expression (in teaching). One syllabus can be made (for a multi-section course) and then the individual (teacher) can reach the goal in his own way." He stated that in many cases multi-section courses often end up with "just as many different courses as sections. Therefore, you can't depend on this course giving the student enough so that he can go into another course."

The Committee recommends that syllabi of all courses offered at the University be prepared by the instructors concerned. These would be filed by the department chairmen with the deans of the respective colleges in which the courses are offered. The chairmen and deans would be responsible for controlling duplication within and between departments.

The Committee also recommends that the syllabi be made available between colleges and that they be made available for purchase by students.

The Committee further recommends that new course syllabi be written every five years and every time a course is materially revised or a new one is initiated.

Course Duplication

Duplication of course material is inevitable in universities offering degrees in a variety of majors. The goal of this study was not to determine whether course duplication exists at the University of New Hampshire, but to decide whether it is excessive. The techniques employed must obviously include subjective judgment.

The Committee does not intend to point out specific areas of duplication for two major reasons: (1) it does not feel qualified to do so in many subject matter areas, and (2) there may be areas of duplication that we are not aware of.

In order to provide a general picture of the number of courses offered and of class size, reference is made to Tables 26-65. Although the data do not unequivocally prove or disprove the existence of course duplication, they do provide one of the few criteria available for making decisions. Table 27 shows that a total of 1,435 courses were listed in the 1958-59 University catalogue. The number of courses actually taught during the 1958-59 academic year totaled 1,034, of which 860 were not exclusively graduate courses. Assuming that undergraduates take five courses per semester, the average number of students per course would be in the vicinity of 38. This figure disregards the fact that a few multi-section courses account for a large portion of the enrollment. Tables 42-65 indicate that in some related areas, where course duplication between departments is likely, average class size is relatively small.

In order to obtain a wide base of opinion, the interview of faculty members included questions relating to course duplication within and between departments. About 35 percent of the faculty members interviewed indicated that course duplication definitely existed within their departments. Another 15 percent indicated slight duplication within their departments. However, about 80 percent of the faculty members reporting course duplication indicated that this duplication was justified. Some of the justifications for course duplication were: (1) repetition is necessary, (2) service courses must duplicate portions of major courses, and (3) presenting different points of view is desirable.

Faculty members interviewed were also asked to indicate their awareness of unjustifiable course duplication outside of their departments. About 50 percent of those interviewed indicated that they were aware of this type of course duplication. The few specific cases of course duplication mentioned occurred between departments where the subject matter areas are closely related.

The questionnaire sent to a random sample of students also referred to duplication of course content[1]. About 40 percent of the respondents indicated that they had encountered such duplication. Eighty percent of those students who had encountered duplication indicated that it consisted in the overlapping of certain material between different courses. About five percent stated that virtually the same course was taught by different departments.

Course Proliferation

The problem of proliferation of courses exists in most universities. As the fund of knowledge grows, the pressure for new courses develops. When new members join a department they often request and are usually given permission to teach an upper level course in their specialized field of interest. This action is often necessary to attract and keep good faculty. When such a faculty member is replaced, the course initiated in the above situation is often retained in the department. In addition a new course is added for the newly acquired replacement. This situation can lead to increasing numbers of upper level courses.

Over a period of only six years the number of courses listed in the 1-50 group remained constant at 622 as shown in Tables 27 and 30. The courses numbered above 50 increased in number by about 20 percent, at an annual rate of over three percent.[2] A good portion of this increase was in graduate courses numbered above 100. Upper level courses are thus increasing in number, while the number of lower level courses is remaining fairly constant. The hypothesis stated above relative to course proliferation could explain this situation. Expansion of the graduate program, and the need for more specialized courses could also be responsible.

During the 1958-59 academic year, 17 percent of the courses taught were exclusively graduate courses (numbered above 100) and 30 percent were upper level courses (numbered 51-100). These facts may raise at least two questions: (1) should the number of upper level courses be lowered (or held constant) in the future? and (2) if so, how can this be accomplished?

In addressing itself to the first question, the Committee feels that an objective answer can be determined by having course syllabi available. When these syllabi are available, it would be possible for persons trained in specific subject matter areas to evaluate the need for the large number of upper level courses offered at the present time.

If it were decided that there are too many of these courses, several methods of implementing a reduction are available. The first, and probably most fruitful method, would be a closer cooperation between departments which deal with closely related subject matter. Carried to its extreme this method could result in several departments offering common programs. Although this may be practical in some cases, particularly at the undergraduate level, a general recommendation to combine graduate programs does not seem desirable. The Committee has elsewhere recommended a liberalization of undergraduate training (see pp. 54-60) with the thought that more of the specialized work of a professional nature should be offered at the graduate level. If the many specialized areas of knowledge are to be adequately treated in graduate courses, it seems that a general combining of graduate programs would be undesirable for two reasons: (1) it would prevent adequate coverages of specialized areas, or (2) if it did adequately treat all areas, a multitude of courses would exist in each combination of subject matter areas, and the change would be superficial. A general recommendation for closer cooperation between departments in offering upper level courses does, however, seem practical. Such cooperation would be much easier to bring about if course syllabi were available for study by faculty members teaching in closely related subject matter areas.

Another method of reducing proliferation of upper level courses would require that whenever a department adds a course in this category, one (or two) courses be dropped. Although this is an intriguing method which might be generally applicable, it could be detrimental to departments having only a few upper level courses and/or facing rapidly expanding subject-matter areas.

Offering advanced courses on an alternate-year basis has many advantages and a few disadvantages. The alternate-year offering provides a method of covering specialized areas of knowledge where small class size makes it doubtful that these courses should be offered on a yearly basis. The process also makes it possible for faculty members to offer courses in their specialized areas on a more efficient basis. The major disadvantage of the alternate year offering of courses is that some students may be deprived of the opportunity of taking a course because of scheduling problems. If, however, low-enrollment courses are not offered on an alternate year basis, they will probably be dropped completely and the student will have no opportunity to take them.

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[1] See Appendix 3.

[2] Only 13.5 percent of the total undergraduate class enrollment.

The interviews of faculty members referred to the possibility of offering in alternate years courses that are now taught on an annual basis. Only 18 percent of the respondents strongly opposed the idea that more of the University's offerings should be given in alternate years. Sixty-four percent of the respondents indicated that they would be willing to put more of their own advanced courses on an alternate-year basis.

Until course syllabi are available the Committee does not feel that the existence of proliferation (and duplication) of upper level courses can be determined objectively. The fact that upper level courses increased in number by 20 percent during a six year period is alarming to us. In order to insure against proliferation of upper level courses, it is generally recommended that departments in closely related subject matter areas (within and between colleges) effect a closer cooperation in their upper level course offerings. It is further recommended that classes with low enrollment be offered on an alternate-year basis.

The Balance Between Liberal and Specialized Education

One of the most unrelenting pressures exerted on universities over the last hundred years has been the demand for greater depth of specialized education.[3] The argument behind this demand is and has been essentially straightforward: universities should prepare the highly trained specialists who will staff key positions in an increasingly specialized society.

Increased specialization has generated a counter-pressure for liberal education. In its extreme form this counter-pressure has sought the elimination of all specialized training from higher education and the return to the ideal of the early American universities: the development of intellect and character through the study of a rigidly classical curriculum.

What is the position of the University of New Hampshire in this controversy? There is little doubt that in many areas the University has gone far along the path of specialization. For example, one department requires its major students to earn approximately 85 percent of their credits in departmental and closely related courses. The large number of pre-professional and prescribed curricula available to our students indicates widespread acceptance throughout the University of all degrees of specialization.

In the area of undergraduate education the University of New Hampshire is composed of three colleges, each of which enjoys considerable autonomy. The extent of this autonomy is evident in the fact that the only University-wide course requirements are R.O.T.C., physical education, and freshman English. The University administration and the Senate appear to have assumed neutral roles in the debate over liberalization vs. specialization, leaving each college to make its own decisions.

Examination of the curricula offered in each college yielded evidence that the colleges were becoming increasingly concerned about problems of over-specialization. This concern has resulted in the incorporation of "Social-Humanistic" requirements into a number of curricula. Nevertheless a very high degree of specialization is still permitted in all the colleges. Engineering students in the College of Technology, for example, must earn more than four-fifths of their credits in departmental and related courses. A further example is the offering by the College of Liberal Arts of some of the most specialized programs in the University, several of which, ironically enough, exist in traditional liberal arts areas. Finally, there are prescribed curricula in the College of Agriculture which do not permit a student free choice in selecting any of his non-required electives. It thus appears that the colleges are developing individual policies aimed at limiting specialization but that the impact of these policies is at present slight.

The departments, which are the ultimate source of specialization in a university, necessarily deal with specialized areas of information. As departments grow they make increased demands upon their colleges for additional specialized courses and curricula. The colleges must balance these demands against concern about over-specialization. In such a dilemma, there is little doubt that any moves toward liberalization will be halting ones.

In short, current attempts at liberalization of the curriculum at New Hampshire are restricted by these realities: departments are likely to resist such attempts; the colleges are making only limited efforts; and the University administration and the Senate are standing aloof.

In the absence of any clearly-defined University-wide policy, the Committee suggests that the University administration and the Senate assume final responsibility for establishing and maintaining a proper balance between the liberal and specialized components of the undergraduate programs.

To help establish this balance, the Committee offers a recommendation based upon its answers to two questions: 1. What should be the balance between liberal and specialized education? 2. During the student's time allotted to liberal education, how could the purposes of liberal education best be served?

Since there are no objective criteria to help provide simple answers to these questions, we have drawn upon the experience of our consultants and of our colleagues in reaching our decisions. We have agreed that, depending upon the number of credits required for his graduation, every University student should earn between a quarter and a third of his credits in courses which further the purposes of a liberal education. From his remaining required credits the student would satisfy the specialized education requirements of his department or prescribed curriculum and select his elective courses. We have also agreed that University-wide course requirements would best solve the problem at this stage of the University's development.

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[3] For the term "specialized education" we accepted the usual definition, "a concentration of study in a limited subject-matter area". We also accepted the view that the purpose of specialized education is ordinarily to provide professional or vocational training.

RECOMMENDATION

All students of the University of New Hampshire will complete the following requirements (exclusive of R.O.T.C. and physical education requirements):

1. English 1-2, 6 credits.
2. A four-year independent reading program, 5½ credits.
3. *Either* of the following:
   - A. A four-year distribution requirement, 24 credits.
   - B. A four-year core course requirement, 24 credits.

Requirement 1.

A basic skill expected of every University graduate is the ability to write clear, forceful English. English 1-2 attempts to develop and perfect this ability. As described in the University catalogue, English 1-2 has two objectives: "Training to write correctly and with force and to read with appreciation and discernment the chief types of literature." These two objectives are not necessarily complementary and the attempt to incorporate them both into a single course may well lead to confusion and frustration for the student and his instructor.

The first aim of the course, to train students "to write correctly and with force", is not realized for substantial numbers of our students. A common faculty complaint is that many upperclass students cannot write correctly, let alone forcefully. Even more significant is the fact that occasional students who have successfully completed English 1-2 are subsequently remanded to English A, a remedial course designed to teach the "fundamentals of English". It thus appears that English 1-2 assumes a knowledge of the fundamentals of English in its students.

The second aim of the course, "training . . . to read with appreciation and discernment the chief types of literature" may well interfere with a student's attempt to write with force.[4] To judge a student's writing skill on the basis of his critical analyses of such literature can greatly complicate his problem of learning to write contemporary English and destroy any enjoyment he might have had in the reading. The Committee thinks that the task of learning to read with appreciation and discernment is of such importance that it should be disentangled from the problem of learning to write.

A logical way of separating the two objectives, training to write and training to read, would be to assign them to different courses. This could be done by separating English 1-2 into English 1, primarily a writing course, and English 2, primarily a reading course. This division would define and possibly simplify the tasks of both student and instructor.

The Committee is agreed that such a division is desirable. It offers the following *suggestions* about a restructured English 1 course:

1. Efforts should be made to develop new tests which could measure the actual level of writing skill in prospective freshmen. If such tests were effective they could detect students who were deficient in the "fundamentals of English". Such students could then be aided on a remedial basis. Even more important, however, would be the detection of students with superior writing skill. These students, who now are detected only through their grades in English 1, should be excused from the course requirement.

2. Readings chosen for the course should contribute directly to the student's task of learning to write. Such readings should be models of clear, modern writing and should deal with ideas on a level attainable by freshmen. The new English 1 reader selected for this coming fall semester appears to satisfy both criteria.

3. The Committee thinks that one of the most effective methods of teaching writing is through direct student-teacher conferences. It recognizes the burdens that such conferences would place upon instructors. It has worked out a possible outline of an English 1 course which would help provide additional time for conferences. For each student, the course would provide the following:

   A. One lecture a week. These lectures might deal with the course reading or with general writing problems. They might even resemble the lectures in an experimental freshman English course described by one of the Committee's consultants. In this course large lecture sections, offered on television, were held once or twice a week. In the first of these lectures a newspaper editor analyzed a piece of cub reporting and described in detail the steps by which he transformed it into copy for his paper. Subsequent lectures examined writers at work on reports, journal articles, fiction, etc. Students met in sections once or twice a week to discuss the lectures and their own attempts at writing. The course apparently aroused a high degree of student interest and enthusiasm.

   B. One discussion group a week.

   C. One individual conference with an instructor to discuss individual writing problems. These conferences would be held every two or three weeks. They could permit the student to participate in the grading process.

A student obviously cannot learn to write well in a single course. He can perfect the skill only by working at it over a long period of time. If each faculty member does not demand such an effort of him, he is not likely to make it. The demand is clearly not made by most faculty members at New Hampshire. The Committee is in sympathy with the statement received from Professor John Richardson of the English Department: ". . . instructors of all courses (should) require the writing of well-written papers, with points taken off for poor or careless writing. I believe that if this rule were adopted and enforced the quality of student writing would noticeably improve." The Committee suggests that the faculty cooperate with the English Department in every way possible in a joint effort to improve the quality of student writing.

In the following section of the report the Committee recommends the adoption of a four-year independent reading program. If this program is adopted, English 2 could contribute a great deal to its success.

The Committee offers these suggestions in the hope that they will stimulate the kind of discussion which would lead to a more vital freshman course.

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[4] The essays selected from last year's English 1 reader, for example, may have been beyond the grasp of many freshmen.

Requirement 2.

It is characteristic of an educated man that he reads widely and critically throughout his lifetime. Ideally this habit of reading should be established early in an individual's formative years. Actually, for most individuals, it has not been established by the end of high school. As a result colleges and universities are confronted with a widespread indifference to books and to reading on the part of entering freshmen.

Those colleges and universities which are attempting to provide liberal education are therefore faced with the question: how can formal education help develop in students a permanent habit of reading? Traditionally the attempt to develop this habit has been confined to one-year freshman English courses. The Committee is convinced that the habit of reading can be established only if more books are read over a longer period of time than is possible in a two-semester freshman course. Accordingly we recommend that a four-year independent reading program be established and be required of all students at the University.

Three basic considerations in establishing such a program are the books to be selected, the number to be read, and the examining procedure.

The Committee is not attempting to construct a list of books for the program. We are, however, impressed by the quality and range of the list (made up entirely of paperbacks) used in a similar program at Dartmouth College.[5] A list of equal quality should be the core of any reading program established at the University.

The Committee suggests that each student read at least two of the recommended books a semester. It also suggests that he read at least two additional books during each of the summers which follow his freshman, sophomore, and junior years. He would thus have read twenty-two of the recommended books by the time of his graduation. Half a credit might be granted for each pair of books read. The student would thus earn five and one-half credits for completing the entire program.

The Committee is aware of the difficulty of guiding and examining students in such a program. It can only suggest the need for innovation in such a situation. Possibly student-organized and student-led discussion groups could be used effectively. Graduate students and faculty wives might be given the major part of the task of grading papers and examinations. Students might be graded as "pass" or "fail".

Whatever the difficulties involved in establishing an independent reading program, the Committee is convinced that it should be established.

Requirement 3.

The Committee agrees that students should be directed into specific courses which advance the purposes of liberal education. Since, however, the Committee is divided on the nature of the courses to be required, it offers two alternative patterns of courses for faculty choice.

Alternative A.

The student would satisfy Requirement 3 by selecting courses from each of several groups. The following is an *example* of how the requirement *might* be met:

The student will complete one year's work in each of the following four groups:

Group A — History 1-2.

Group B — Botany, Biology, Chemistry, Geology, Mathematics, Physical Science, Physics, Zoology.

Group C — Agricultural Economics, Economics, Government, Psychology, Sociology.

Group D — Arts, English, Humanities, Languages, Music, Philosophy.

These group requirements represent an attempt to "provide that comprehensive body of knowledge in the major branches of learning", the first of the three stated purposes of liberal education.

The inclusion of History 1-2 as a University requirement in alternative A is an innovation which merits discussion. One of the purposes of the College of Liberal Arts is ". . . to help all of its members to achieve an understanding of the heritage of civilization . . ." Since the Committee thinks that every university graduate should possess some degree of that understanding, we recommend that History 1-2 be made a University-wide requirement. Indeed, we would strongly support a disposition of some history instructors to give more emphasis in this course to the cultural, political, and social heritage of the non-Judeo-Christian world. At this point in American history, we urgently need to know more about the people of Asia and Africa, lest we forfeit our role as world leader through ignorance of their institutions and values. Perhaps a systematic implementation of this objective calls for a reorganization of the course.

Some of the advantages claimed for the group-requirement approach are these:

1. The courses already exist and are staffed by competent and experienced instructors.
2. There are sufficient courses listed to enable the student to select subjects which relate to his own interest.
3. Most of these courses, by emphasizing subject matter, provide students with enough depth of information so that they can make informed evaluations in important branches of learning.
4. Within the courses which the student elects, he often discovers new and absorbing areas which may entirely reorient his career.

Some of the disadvantages charged against the group requirement approach are these:

1. Many of the courses are prerequisite to more advanced courses. Such prerequisite courses are usually designed primarily to meet the needs of potential majors and often sacrifice breadth for depth.
2. Very few of the courses attempt to integrate subject matter into a meaningful whole. The instructor, who may be fully aware of interrelationships within his discipline, frequently neglects synthesis in favor of presenting all the facts.

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[5] See Appendix 5.

3. Very few of the courses make any attempt to relate their own subject matter areas to other subject matter areas. Most of the courses are offered by single departments and so are staffed by specialists. As a consequence, students receive little help in "achieving a consistent view of themselves and the complex physical and social world in which they live", the last of the three purposes of liberal education.

Alternative B.

Under this alternative the student would satisfy Requirement 3 by taking a sequence of integrated courses for four years.

The following sequence is offered as an *example*. This sequence would consist of four courses, each of which would require two semesters, and would be valued at three credits a semester.

1. *The evolution of the physical universe.* This course would examine the universe from its origin to the present time. It would deal with the evolution of galaxies, stars, and solar systems and it would investigate chemical evolution up through the early organic level.
2. *The evolution of biological systems.* This course would trace the evolutionary pathways which led from the origin of life through increasing specialization to the higher plants and animals. It would consider the mechanisms which produce biological evolution.
3. *The evolution of social systems.* This course would examine the evolution of human groups in terms of the sociological, anthropological, economic, and political aspects of human behavior.
4. *The evolution of human culture.* This course would examine the evolution of several art forms. It could use the historical or the appreciation approach or a combination of both.

Some of the advantages claimed for the integrated course sequence approach are these:

1. The courses can be carefully designed to serve the purposes of liberal education. Each course can unify several disciplines and all four courses can in turn be related in a meaningful fashion. The sequence proposed above, for example, is designed to help a student recognize his role as an evolving organism in an evolving environment.
2. Each course would be headed by a carefully-selected individual whose time would be totally committed to the course. This arrangement would be ideal since the individual would be selected on the basis of competence and enthusiasm for the course.
3. The integrated course sequence, where it is carefully tended, works. Columbia University, Colgate University, and the University of Chicago have had years of success with it.
4. The sequence can be a highly economical way of teaching students. We are convinced that the logical place for television teaching at New Hampshire is in a sequence such as the one we propose. We also are convinced that the sequence, since it deals primarily with ideas, can be taught entirely by lecture if the lectures are of a sufficiently high caliber and utilize all available teaching aids.

   Dr. McGrath has assured us that if these courses were to be taught by lecture alone and on television, it would be possible to hire some of the finest teachers in the country to staff them, provide completely adequate teaching aids and, ultimately, effect savings sufficient to make substantial salary adjustments for the whole faculty.

Some of the disadvantages charged against the integrated course sequence approach are these:

1. Integrated courses, however carefully planned, usually are so superficial as to be nearly valueless.
2. Instructors of integrated courses do not feel as though they are a part of any one department and end up feeling like second-class members of the faculty.
3. Integrated survey-type courses which cover a student's area of specialization are a waste of his time.
4. All students are forced into a mold which neglects any preferences they might have.

Remedial Courses

Remedial courses are offered to or required of certain students for the purpose of raising their level of achievement to the standard required of entering freshmen. At the present time English A is the only course on campus specifically meeting this definition. College credit is not granted for its completion.

Faculty members interviewed about the curriculum were asked:

(a) Do you believe that the University has a responsibility to provide remedial courses?

(b) If so, in what areas?

(c) Should this work be provided during Summer Session, in the Extension Service, in regularly scheduled courses, or otherwise?

(d) Should college credit be given for these courses?

The responses to question (a) indicate that some faculty members have serious doubts as to the desirability of offering any remedial courses at the University. Some feel that since the prime responsibility for this training lies with the high schools they should not be "bailed out" by the University. The University, by offering this training, is prolonging a situation which allows the high schools to shirk some of their responsibilities. Other faculty members feel that the University, as a state institution, has some responsibility to provide remedial training for students from the small high schools who, perhaps, do not have the opportunity to learn the material required of them at the University. Of the total responses to question (a) above, 32 were negative, 60 were affirmative, and 4 were neutral. Those faculty members responding affirmatively to the above question mentioned English and Mathematics as the most important areas to be covered.

Responses to question (c) above were quite varied. The faculty appears to feel that remedial courses should not compete with regular classes for University facilities. There is also a feeling that extra tuition should be charged for remedial work. Responses to the last question (d) yielded the unanimous faculty opinion that college credit should not be given for completion of remedial courses.

In view of the fact that numerous, small, poorly-staffed high schools exist in certain sections of the State of New Hampshire, the Committee does not feel that the time has come when remedial instruction can be abandoned at this state institution. It is hoped and expected that the time will come when this is possible.[6] The position of the Committee, therefore, is that remedial courses in English and in Mathematics be required of students deemed to be deficient in these areas of learning.

Since these courses are not directly concerned with the University credit structure, the Committee recommends that they be given in the summer (prior to entrance into the University) when possible. It is proposed that tests indicating the level of achievement in these two areas be given to prospective freshmen in the spring prior to entrance. Those who are deficient would then be required to complete the remedial work during regular summer school. If, for special reasons, the student is not able to attend summer school or his deficiencies are not recognized, he should be required to take the remedial work in the regular evening University Extension program.

Independent Study

The initiation of an independent study program has been considered by the Committee as a method of (1) improving the quality of the resident instruction by exploiting the student's capacity to learn, and (2) of saving faculty time. Programs of independent study can take a multitude of forms which the Committee has not studied individually. We have defined the program in general terms as one where students study on their own and where their contact with the teacher is confined to discussions of the student's progress in pursuing his particular plan of independent study. At the present time this type of study at the University of New Hampshire is confined to the "plan for independent study" in the College of Liberal Arts and graduate "reading and research" courses.

Dr. Carpenter was quite enthusiastic about the "pyramid plan" recently initiated at Pennsylvania State University. Under this plan groups of students composed of a senior, who acted as a group leader, two juniors, who assisted him, four sophomores, and eight freshmen meet once a week in a two-hour session for discussion of professional and academic problems. Many other plans now in operation have no provision for group meetings. They rely upon assigning the individual student reading material from a prepared syllabus.[7] The many plans for independent study currently existing in universities have met with varying degrees of success.

A report of a study committee of the Fund for the Advancement of Education[8] gave the following general comments after analyzing a wide variety of independent study programs.

1. Each faculty should develop a program suited to its own philosophies and resources.
2. Programs grow more successfully from informal study and discussions than from administrative edict.
3. Sufficient time should be allowed for faculty to become accustomed to the idea.
4. The earlier in a student's career the program is started, the greater would appear to be the values accruing to the student.
5. Varied opportunities for independent study should be made available to the student.
6. Students (and faculty) require orientation prior to pursuing such a program.
7. The role of the instructor may become different under these programs, but it will be no less demanding nor time-consuming. It was found that in many cases the independent study program consumed more faculty time per student than did the ordinary classroom lecture.

In order to determine faculty reaction to the independent study concept at the University of New Hampshire, the Committee interviews of faculty alluded to the subject. Over 75 percent of the respondents indicated their interest in some method of encouraging students to do more independent work. The methods proposed, however, included increasing homework and term-paper assignments, which the Committee does not define as a program of independent study. Only 14 percent of the faculty interviewed were definitely opposed to the independent study idea. The reasons given for the opposition included "students are not up to it", "it would not work at UNH", and "it is too expensive in terms of faculty time". The respondents were also asked if they felt that an independent study program would be practical in their own department. Forty percent gave an unqualified "yes", nine percent stated that their department already had one, and twenty-four percent said "no". The remaining respondents gave either very qualified or noncommittal answers. The major objections were concerned with the anticipated drain on faculty time.

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[6] Two members of the Committee would go beyond this mere statement of hope and recommend the following: "That definite standards be established for English and Mathematics and that high schools be advised that after a specific date, 1965, students must meet these standards to be accepted in the University. At this date remedial courses would be abolished at the University."

[7] For discussions of additional plans see report by the Committee on Utilization of College Teaching Resources, *Better Utilization of College Teaching Resources*, The Fund for the Advancement of Education, New York, 1959, and *Independent Study, New Dimensions in Higher Education*, Number 1, U. S. Department of Health, Education, and Welfare, U. S. Gov't. Printing Office, Washington, 1960.

[8] *Better Utilization of College Teaching Resources*, pp. 20-23.

The Committee is recommending the establishment of an independent reading program (see pp. 14-15). Beyond this, we do not feel that the evidence warrants a formal recommendation to institute an additional independent study program at the present time. We do, however, wish to recommend that the administration support faculty experimentation with various programs of this type by providing the facilities and encouragement. In this manner it would be possible for faculty, on their own initiative, to determine the applicability of various programs of independent study to the conditions in existence at this institution.

The General Physical Education Requirement

One of the few University-wide requirements for students is the general physical education course. Men are required to take a one-year course for a total of one credit, and women are required to take a three-year program for a total of six credits.

The faculty members interviewed by the Committee were asked:

(a) Do you feel there should be any changes in general physical education requirements?

(b) Do you believe that college credit should be offered for this requirement?

Faculty responses to the first question varied considerably. Twenty-one individuals had no opinion. Seventeen accepted the current program without reservation, and eight indicated dissatisfaction without indicating alternatives. Eight others indicated that general physical education should be abolished, while three members preferred a voluntary rather than compulsory program. The remaining faculty (44) accepted the present required offering with modifications. The most frequently suggested modifications included the following: men's physical education should be made more effective; the requirement for both men and women should be the same, preferably two years; men's physical education should be placed on the same basis as the women's courses; men's physical education should be dropped but women's courses retained.

Acceptance of a general physical education requirement, with or without modifications, does not imply acceptance of the present system of offering college credit for the work. Forty-seven faculty members indicated that credit should not be given; twenty-nine would continue the present practice; and three had no opinion. The twenty-two remaining faculty would accept credit on a modified basis. Responses included the following: credits in women's physical education should be reduced to a half credit per course; credits should be given only if there are lectures; credits should be given if the program is adequate.

The Committee feels that required physical education courses serve a valid purpose. If they are to be offered, they should be well conceived and taught. Furthermore they should carry token credits.

The Committee has no criticism to make of the women's physical education program. The majority of the faculty considers it excellent. On the other hand, the men's physical education program suffers from the pressures resulting in emphasis on intercollegiate athletics. These pressures result in a program which is indifferently taught and organized and has little value.

The men's program might better be patterned after the women's program by emphasizing participation rather than competitive sports. A program of this sort would be of more lasting benefit in the student's future years. Coeducational participation in certain sports should be considered.

The Committee recommends that a Department of Physical Activity be constituted in place of the present Men's and Women's Departments to supervise physical education for both men and women. Intercollegiate athletics should be operated by a separate department. We further recommend that the general physical education requirement be changed to two years for both men and women.

Chapter 4. Administrative Arrangements for Instruction

ADMINISTRATIVE arrangements have a direct effect on teaching results. In this chapter the Committee considers such administrative factors as large and small classes, the department's role, teaching aids, laboratories, the library, the advisory structure, and the academic year.

Class Size: The Prospect of Large Classes

Faculty members interviewed by the Committee were asked whether they could materially increase class size for certain types of work, provided the physical facilities were available. They were asked to specify the types of work in which increases could occur and to indicate to what size the classes could conceivably grow. The response indicated that lecture classes could be increased, but that laboratories, seminars, and courses that require discussion and recitation or considerable writing probably could not be increased substantially.

Among those who felt that classes could be expanded there was, however, considerable apprehension about damage to faculty-student rapport. Faculty members generally believed that larger classes restricted discussion, and they were hesitant to move toward a solution which in their estimation would weaken teaching. Many faculty members, however, indicated a willingness to try larger classes if they were given ample assistants to help with the paper work or were provided with such resources as teaching machines, television, films, and other technological aids. There was a minority, however, which refused to contemplate increases in class size as either a realistic or reasonable solution.[1]

In seeking to recommend a policy on this matter, we scrutinized studies and experiments elsewhere and subjected our consultants to lengthy interrogation. To explain our views, therefore, we note some of the observations which helped us arrive at a consensus.

Perhaps the most authoritative recent view on the subject of class size is that of the Committee on Utilization of College Teaching Resources of the Fund for the Advancement of Education which in its May, 1959, report concluded:

> The quality of the teacher has far more effect on student learning than the methods of teaching used or the size of the class taught. Consequently the best teachers should be made available to more students, and one of the best ways of doing this is to provide for large classes taught directly over television.
>
> Students learn as much in large classes as in small ones, and the loss of personal contact sometimes noted can be overcome by judicious use of class groups of widely varying size, both larger and smaller than customary, and by greater use of capable assistants.[2]

Our consultants had similar views. Dr. Carpenter reported that Pennsylvania State University will increase class size, but is simultaneously projecting a 100-percent increase in assistants and secretarial help. In response to the inevitable question as to the source of qualified assistants, Dr. Carpenter suggested that bright undergraduates and faculty wives might provide some assistance.

Dr. Coombs agreed that classes could be increased in many areas and added several alternative schemes which would make a shift in faculty-student ratios less painful. Among these schemes were a reduction in number of class meetings per week, use of faculty wives and undergraduate honors students as assistants, reappraisal of the need for laboratories with a view toward elimination or reduction of these where appropriate, use of films, TV tapes, TV courses, and teaching machines. Following the lead of Beardsley Ruml and Donald H. Morrison in their *Memo to a College Trustee*,[3] Dr. Coombs suggested that "the only way to afford small classes is to have some large ones".

Dr. McGrath's views were not far removed from those of the other consultants. He stood on the principle that education ought to be an outgoing, participating process rather than an absorptive one. Thus, he felt that "you cannot really teach people how to manipulate ideas by lectures" and that "you need the give-and-take of small group discussions". But he was prepared to accept the fact that "you do not have to do this in every class to get the educational process started. There is a transferable capacity from one course to another." In this sense, he favored a four-year program consisting of a combination of some large and some small classes as one which would be economical and not educationally deleterious.[4]

Dr. Dressel also indicated that he favored some large classes accompanied by discussion sections. In his estimation, there is a role in college for exciting lectures, as well as for writing, democratic group discussion, and case-study approaches. The problem is to strike a balance among these. The faculty advisor bears a heavy responsibility for ensuring that the student gets all kinds of experiences.

Influenced in good part by views such as those stated above and by the open-mindedness of our own faculty, the Committee recommends that the University introduce extra-large lectures (150 or more students) for introductory courses in subjects that lend themselves to exciting lecture treatment. We do not believe that normally the extra-large class should be used in advanced courses where discussion is important.

Where a faculty member assumes responsibility for large classes, he should get extra credit for such an assignment. He should also get assistance in the form of graders, discussion leaders, clerical helpers, and mechanical teaching aids if he needs them.

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[1] Faculty in the College of Agriculture generally welcomed increases in class size, whereas faculty in the other colleges had varying degrees of misgiving about this solution. This response was in good part the result of decreasing enrollment in Agriculture.

[2] The Committee on Utilization of College Teaching Resources, *Better Utilization of College Teaching Resources*, The Fund for the Advancement of Education, New York, 1959, pp. 10, 11. See also Seymour E. Harris, "Financing of Higher Education: Broad Issues", in *Financing Higher Education 1960-70*, McGraw Hill, New York, 1959, pp. 42-51.

[3] Beardsley Ruml/Donald H. Morrison, *Memo to a College Trustee*, McGraw Hill, New York, 1959.

[4] Dr. McGrath cited the apparently successful approach utilized at Cornell College, Iowa, where some lectures are attended by all members of a college class. Thus, all freshmen attend a course in Western European history. The professor gives two lectures a week. For a third session, the class breaks up into discussion sections led by seniors intending to work for their Ph.D.

Class Size: The Status of Small Classes

Is there a minimal number of students which a course or section must attract in order to justify its being taught? Having discussed the prospects of larger classes, we look at the opposite side of the coin, the status of small classes in the University's academic future.[5]

The Committee does not assume that a low registration in a course *ipso facto* reveals basic weaknesses or calls for its abandonment. It does, however, believe that small classes must be reviewed. The criteria for review are the organization of instruction, the level of content (introductory, upperclass, or graduate level), and the importance of a course to the program of which it is a part.

Ruml and Morrison emphasize organization of instruction in their determination of appropriate class size.[6] They classify teaching groups as lectures, lecture-discussions or small lectures, seminars, and tutorials. In their opinion the lecture method is appropriate for classes of 80 to 400 or more, with an average of 250. The lecture-discussion or small lecture may range from as few as 25 to 150 or even larger, with an average of 70 to 80. The seminar, i.e., "open discussion under relatively loose instructional leadership", is most effectively utilized with groups ranging from 8 to 20. The tutorial method with its flexibility in meetings and emphasis on independent reading, is used for groups ranging from 1 to 6, with an average of 3. Each organizational pattern has its role in a university and each conceivably has an appropriate size for both economical and effective teaching. The Committee believes that the University must take the method of instruction into consideration in determining upper and lower limits of course registration.

The level of content is important, too, but it probably cannot be divorced from method of instruction. Graduate and advanced undergraduate courses tend to be small. These are an integral part of our University's programs, but their number should not be unlimited. A high percentage of these (seminars, tutorials, reading, and small lecture-discussion classes) may be a luxury rather than a necessity.

The question of luxury or necessity depends on the University's commitment to a prescribed curriculum or departmental major. If the University continues to feel that a particular program is necessary, then it must accept low-enrollment courses which are vital to the over-all program. If the University questions the existence of programs with many low-enrollment courses, then it must re-evaluate that program's future. We emphasize that a few low-enrollment courses should not be *prima facie* evidence against a program.

RECOMMENDATIONS

1. In dealing with small classes, the University should utilize the three criteria for judgment noted above: (a) method of instruction, (b) course level, and (c) course relationship to program.

2. The imposition of a rigid minimum to class size should be avoided. There is no magic number here. It is possible, however, that in terms of courses of the same type enrollment minima might be established, but only if a desired program is not thereby irreparably harmed. Departments now imposing low ceilings of 30 or less on sections of courses where lecture or lecture-discussion methods are used should furnish proof to the dean of their college why such ceilings cannot be raised or sections merged.

3. Undergraduate programs which are chronically low in enrollment should be reassessed. Professional programs, particularly, lose much of their reason for being if they do not attract students, since they are geared to demands in the community. These programs should either be dropped, or where feasible, merged with other closely related programs. We suggest that the latter approach may well hold the key to the problems of several professional programs in the College of Agriculture and elsewhere.

4. The number of graduate courses should be kept in balance with the rest of a department's course offerings. These courses must obviously be small but they must be complemented by a sufficient percentage of larger courses to guarantee some economy. If there is insufficient enrollment to warrant departmental maintenance of an adequate graduate program, then the department should entertain the possibility of merging its graduate program with those of closely related departments.

5. The productivity index of departments (student credit hours per faculty equivalent) might well serve as a clue as to which programs might be reassessed (See Tables 81-92). This index cannot serve as the sole criterion, but it can be one of several guides in revealing where problems exist.

6. A special committee consisting of the deans of the three colleges, the President, and one elected non-administrative faculty member from each college should review the above reappraisals with a view toward either (a) abandonment of courses or programs or (b) merger of courses, programs, or departments.

The Role of the Department in Policy Decisions

This report inevitably must scrutinize the University's processes for decision-making and execution in the areas of curriculum, faculty activities, and time-space utilization. Where are policy changes usually initiated? Are the processes likely to provide broad or narrow perspectives? How much communication exists between policy makers?

Relations Within Departments

The department is the key instrument for both initiating and implementing policy on most curricular matters. The department's role is also considerable in dealing with faculty utilization and time-space questions. The process of decision-making in the department and its effectiveness were considered. In our interview of faculty, we inquired, "What is the procedure for making changes in your department curriculum? Should it be different?"

In most departments with two members or more (24 out of 34), the process was deemed to be democratic and, with minor qualification, was considered satisfactory. In the remaining departments, a generally negative faculty response indicated that the process was either unclear or undemocratic.[7] In the departments of History and Economics and Business Administration, all the respondents (excluding chairmen) indicated dissatisfaction with the decision-making process. Grievances most frequently voiced by respondents included the following: chairman consults with members separately, in lieu of general, open meetings, and then makes decision himself; chairman sometimes consults with members but not consistently; chairman discusses questions with part of staff in lieu of full, open meeting; and chairman permits no vote by staff, simply announces his decisions to staff after the fact. In all but one case, faculty members in departments not using democratic processes indicated they would like to adopt such processes.[8]

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[5] A comprehensive report of course enrollments at the University for the academic years 1952-53 and 1958-59 is included elsewhere in this report (see pp. 45-58, including Tables 42-65.) The reader is directed to this information for evidence concerning small classes.

[6] *Memo to a College Trustee*, pp. 22-25.

The Committee believes that curricular matters call for full and open discussion by all members of a department followed by majority decisions. This type of action does not insure against proliferation, duplication, and over-specialization in curriculum. It is a first step to faculty awareness, responsibility, and cooperation in seeking answers to curricular problems. Open discussion may well provide the best means of insuring balance in a department's offerings.

Faculty activities and time-space matters should also be dealt with by open departmental discussions. We believe the morale of faculty members would be enhanced if they participated in decisions on such matters as distribution of loads, use of assistants, timing of classes, and availability of teaching aids. Discussion of these matters would tend to insure equitable conditions and to allay suspicions of favoritism.

In some universities, the faculty's role in departmental decision-making is protected by the automatic enforcement of a rotating chairmanship. This has the obvious advantages of giving all senior members at least a chance to become acquainted with the technical aspects of running the department, and it prevents any one man from entrenching himself as a type of departmental baron. On the other hand, rotation may bring the post to faculty members having neither the desire nor the ability for it. Rotation also disturbs the continuity of departmental operations. If a chairman is serving well and continues to present the department's case creditably to deans and to other departments, it may be unwise "to change horses in midstream".

Although chairmen are appointed for three-year terms at the University, they are usually continued in their posts from one term to another. The existence of the three-year proviso, however, makes replacement possible and should be used in this manner more often. Non-replacement of chairmen has become such a tradition at the University that termination of appointment conveys a stigma. It should be expected that periodic replacement of chairmen and even automatic rotation, if the departmental staff prefers, will occur normally and without stigma in those departments where a number of faculty are willing to share this post and are capable of doing so.

The Committee recommends that the President and deans who have the primary responsibility for appointment of chairmen make more use of the three-year proviso to replace chairmen. They should take into consideration, of course, the individual and collective preferences of the members of the department in this respect.

The Committee recommends that faculty generally, but particularly faculty in departments which are dissatisfied, freely express their preference for replacement or rotation to their deans. Departmental staffs should collectively develop a general policy on the replacement, rotation, and retention of the chairman in addition to recommending individuals for the post.

Relations Between Departments, Deans, and the President

The dean can influence departmental decisions, either directly or indirectly, and in some cases can veto them. This authority can be exercised in a statesman-like manner or in an arbitrary and capricious manner. Without attempting to spell out the terms of relationship between the deans and departments, the Committee, however, feels that the deans have the essential responsibility to keep the lines of communication open between themselves and departments. The Committee believes that many of the current problems of course duplication and proliferation have been caused by a lack of inter-departmental communication. The responsibility for improving this communication rests with the dean.

Much of the role assigned to deans in terms of departments applies to the President at the college level. The President bears responsibility for bringing all instruments for inter-college discussion and decisions together and for making his views on policy matters consistently clear. Much of the type of leadership referred to here is already present and discernible. The Committee believes that the President's oral reports to the faculty at large and to the Senate serve well in communicating his policies. Similarly his written annual reports have provided considerable indication of his philosophy and plans.

With respect to the problems discussed in this report, further coordination between colleges and departments is called for. The University Senate is an important instrument for effecting policy changes and improving communication among the faculty. This body, however, has not concerned itself primarily with basic University policy. The Senate's default from playing its role has contributed to the lack of communication between departments.

The Committee recommends that the faculty and the University and college administrations revitalize existing instruments for communication, discussion, and coordination whether at the University, college, or divisional level. The University Senate should particularly be entrusted with more responsibility in basic policy matters and in communication and coordination of views between administrative officers and faculty.

The Committee further recommends the following additional measures:

1. That the President meet informally at least once or twice a semester with department chairmen as a group to discuss any topics of common interest.

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[7] Departments in which one or more respondents clearly criticized the decision-making process included Arts, Chemistry, Economics and Business Administration, English, Geology, History, and Zoology. Departments in which one or more respondents indicated they were not clear about the process, if not dissatisfied, included Languages, Music, and Men's Physical Education. Respondents in the Speech section of the English department indicated dissatisfaction with the need of having to process policy matters through the entire English department, but steps have been taken to establish an independent Speech department.

[8] The one exception is worth noting. The respondent indicated his preference in principle for the democratic process but indicated that the unusual circumstances which exist in his department make the dictatorial approach advisable. He referred to a divided faculty with diverse philosophies and clashing temperaments.

2. That all departmental chairmen meet periodically to discuss common problems without the President or deans in attendance.

3. That colleges invite representatives of the other two colleges to attend and to participate in their formal meetings.

4. That departments invite representatives of closely associated departments (for instance, from departments in the same division) to meetings in which they discuss basic questions which clearly affect these other departments. This would include curricular matters but also other relevant questions including personnel decisions.[9]

5. That departments and colleges invite outside consultants to help appraise their programs and organization periodically or at least when major problems arise.

Teaching Aids

Can the technological developments of our age provide any assistance for teachers in tomorrow's crowded classrooms? To what extent can we expect that recorders, tapes, projectors, television cameras, and the whole gamut of mechanical and electronic devices will provide answers for our teaching problems at the University of New Hampshire.

Faculty members may be disturbed by the above questions. These devices appear to challenge time-honored methods of instruction. The "electronic monsters" are not substitutes for live teachers except in very special circumstances. Rather, they may enable the teacher to do a better job or one not previously possible. This has been demonstrated by the Language department's successful use of electronic devices in its laboratories. The History and Zoology departments are increasing their use of technical aids this year with television courses. Their advantageous use as methods for saving of faculty contact time or for reinforcing instructional points should not be ignored. The University should try these devices wherever feasible.

The Committee on Utilization of College Teaching Resources of the Fund for Advancement of Education notes experimentation ranging in complexity from Professor B. F. Skinner's self-teaching machine at Harvard to new uses of ordinary movie films in 13 institutions in the years 1956-1958. Its over-all estimation of these experiments is that the technological devices provide a potential for saving faculty time in instruction, an improvement in quality of instruction when student and faculty reception is favorable, and re-enforcing of ordinary instructional techniques.[10]

Our consultants addressed themselves to the role of mechanical devices in seeking ways of coping with teacher shortages. Dr. Coombs indicated that both films and television were here to stay as teaching aids and were no longer in an experimental stage. He suggested that they might serve most usefully in connection with lecture demonstrations, laboratory technique, and remedial work. But beyond a general endorsement of these devices, he warned that they are not necessarily conducive to financial savings. Substitution of television for large lectures, with other factors constant, was not necessarily effective. Wherever mechanical aids are used with independent study techniques, the key to success lies in programming student discussions afterward.

Dr. Carpenter noted the successful utilization of television at Pennsylvania State University, where closed-circuit TV courses are now an integral part of the instructional system. In large introductory courses television has helped insure that the core of the subject matter is adequately brought to all students. Although Dr. McGrath reinforced Dr. Carpenter's views on Pennsylvania State University's successful use of television, he warned against generalizations concerning the adaptibility of television into all teaching situations.

It appears that all these teaching devices are useful within limits. They can improve teaching and help maintain quality in a period of teacher shortage. In view of this finding, the Committee recommends the following:

1. Departments should survey the usefulness of technical devices and consider their procurement or use in instructional programs. The University should provide funds to enable departments to consult with outside experts in this matter.

2. The University should broaden the facilities of the Audio-Visual Center to make it a clearing house for all mechanical devices which would serve the needs of more than one department.

3. The University should adopt a definitive policy with regard to the use of television for regular instructional purposes. This policy entails, among other items, a clear idea of how to apply to teach a course on television; what facilities, both mechanical and human, are available to a television instructor to assist him in teaching the course; the weight a television course has in the over-all teaching load; and a set of course priorities for television.

4. The use of WENH-TV for University classroom purposes should be confined to extension teaching. The use of television for teaching regular courses given for resident credit should be restricted to a closed-circuit system.

Laboratories

Along with other instructional methods the role of the laboratory needs re-appraisal. Is present laboratory work essential? If it is essential, are there any ways in which the University can effect economies in laboratory operation? The laboratory is an expensive device, both in terms of the faculty manpower hours and the physical equipment it utilizes.

The Committee asked faculty interviewees to indicate (1) how essential laboratory work is in their departments, and (2) whether the major objective of this work is to teach basic principles or to develop techniques.

Of 36 departments, 33 utilize laboratories. Most faculty consider laboratories essential or useful. Most of the departments taught both principles and techniques in laboratories. Some departments appear interested only in principles, and others concentrate on developing techniques exclusively. There was a conflict in response, some members claiming objectives that others did not. The differing responses indicate that the objective of laboratory experience is difficult to pinpoint.

Whether or not the student needs training in the type of perception or manipulation that only a laboratory provides is in part determined by the role of the course in his overall program. For instance, a beginning chemistry course for students who merely seek an introduction to the broad concepts of the discipline may differ from the beginning course for professionally-oriented chemistry majors. The former students may not need the same laboratory experience as that required by the prospective chemists.

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[9] We applaud the President's decision to include the chairmen of the Government and Agricultural Economics departments in the committee to screen candidates for the directorship of the Whittemore School of Economics and Business Administration.

[10] *Better Utilization of College Teaching Resources*, pp. 23-25.

The objective of laboratory experience may change over a period of time, sometimes so gradually that it is unnoticed. Simply because a course has always required laboratory experience is not proof that it requires such today or will require it tomorrow. The laboratory experience may have become increasingly concerned with techniques as an end in themselves rather than as means to knowledge of a discipline. In this sense, a laboratory may well have become a "how-to-do-it" experience for technicians, although not originally established for that purpose.

The Committee recommends the following courses of action to the departments using laboratories:

1. That departments reappraise the objective of laboratory work in each course now requiring such work to determine whether or not it is essential *in toto* or in part.

2. That departments replace laboratory work, wherever possible, by such devices as films, television, video tapes, classroom demonstrations, and discussions.

3. That in departments where laboratory work is essential, ways and means of saving faculty time be considered. This might include reduction in number of laboratory hours, use of more graduate or undergraduate assistants, and employment of full-time laboratory technicians.

Library

Many of the changes suggested in this report will directly involve the library. An emphasis on independent study will call for increased use of the library. Class redistribution during the day will affect the pattern of library use. Reorganization of the curricula will alter the type of services the library must provide.

Since the library is vital to the University's development, planning for the future calls for an integration of library facilities with developments in faculty use, curriculum, and utilization of time and space. Specific areas calling for integrated effort include the following:

1. *Student Reference Projects.* Faculty, student, and library staff time can be saved if reference librarians are consulted about reference projects before they are announced to a class. The reference librarians, one of the most valuable teaching aids on campus, are prepared to meet with classes to discuss the facilities available, if given adequate notice.

2. *General Study Space for Students.* The librarian estimates that library space will become inadequate in seven years. As the facilities of the library are needed increasingly for books and services, the areas reserved for study will inevitably be reduced. There is thus urgent need for providing increased study space elsewhere on campus to reduce the pressure on the library.

3. *Reserve Book Use.* Intensified use of the library as a teaching aid will multiply problems in the use of reserve books and contribute to a general shortening of tempers unless there is a wholesale effort to build mutual understanding among faculty, students, and library staff. The faculty should make students more book conscious so that irresponsible marking and mutilation of books will not occur. In order that the reserve desk can coordinate the demand for reserve books, faculty members should inform the desk of their needs well in advance. In turn, the library staff needs to remember that in its professional capacity it bears the primary responsibility for development of constructive faculty and student attitudes toward the reserve book problem. It knows the problems better than anyone; it is in the best position to build either positive or negative responses to the library.

4. *Centralization of Library Facilities.* One of the most annoying problems in faculty-library staff relations is the divergence in approach to a centralized library. Faculty members prefer decentralization so that research and reference materials may be close at hand. The library seeks the control over its holdings that only centralization brings. The current problem results in part from an inadequately-stated, inconsistently-applied policy which cannot be rationalized as an equitable proceeding as far as faculty is concerned. No establishment of a firm centralization policy should occur without faculty participation.

5. *The University Library Committee.* The existing University Library Committee is established to coordinate faculty, library staff, and administration efforts to make better use of library facilities. It has functioned in the background without publicity and apparently with little influence. However, we see no reason for changing the size of the University Library Committee (now six faculty members and the librarian) or its functions, which are mostly given to policy coordination.[11] The problem is instead one of achieving wider acquaintance with the committee's work and broadening its accountability.

We recommend that the University Library Committee be transformed from a committee of the administration into a University Senate standing committee. In this capacity, the committee would report to the Senate annually with respect to its work.

The Advisory Structure

The advisory structure of the University is currently strong in some respects and weak in others. This structure will inevitably undergo strains as the enrollment increases, and if present weaknesses are uncorrected, it could fail when needed most.

The advisory structure now encompasses the following:

1. Academic advisors who assist students with program planning, course selection, and related problems.
2. Professional counsellors who guide students in regard to personal and personality problems.
3. Student rules which establish the limits within which students and faculty advisors operate.

A clear-cut distinction cannot always be made between the functions of academic advisors and professional counsellors. In practice, they frequently perform each other's duties.

The Academic Advisor[12]

The responsibility for determining advisorial assignments rests with the dean of each college. In the College of Agriculture, the associate dean acts as advisor of all freshmen even though these students may declare a major at the beginning of their first year. The associate dean's assignment includes teaching Agriculture 1, a required one-credit orientation course in which he discusses matters not ordinarily reviewed in other courses. These matters include student rules and regulations, scholarships, campus organizations and facilities, opportunities in agriculture, and programs of study. Assignment to a departmental advisor is made after the freshmen year.

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[11] See "Faculty and Staff Handbook", Article IV, Section 13, Sub-section (c), p. F7.

[12] For a discussion of faculty time spent in advisory duties, see pp. 30-31.

The College of Agriculture meets three criteria of an effective advisory system. It provides the student with easy access to his advisor, it acquaints the student with the College and the University, and it provides vocational guidance.

In the College of Technology the student declares a major upon entrance and is immediately assigned to a departmental advisor. Freshmen who do not take courses in their major department are requested by the dean to make an appointment with their advisor in the middle of their first semester. This is an attempt to secure a closer student-advisor relationship. The College is presently considering ways and means of orienting the freshman academically and professionally. The ultimate program will probably be similar to that of the College of Agriculture.

In the College of Liberal Arts, the nature of the curriculum and the large enrollment necessitate several procedures. Students who enroll in a prescribed curriculum at the beginning of their freshman year are assigned to a supervisor who is the equivalent of the advisor in the other two colleges. Procedures thereafter are similar to those of the other two colleges. However, it is difficult to establish a close student-advisor relationship either because of large numbers of students per advisor or because the prescribed curriculum is not attached to a major department.

Freshmen in Liberal Arts who do not declare their major until their second year are assigned an advisor by the dean. These advisors collectively comprise a Board of Advisors. In the past this board convened regularly to hear lectures concerning advisorial policies and procedures. This practice was resented as being unprofitable and time-consuming. The number of meetings of this board has been recently reduced and the practice of circulating an advisorial handbook to the members has been discontinued. The current College of Liberal Arts procedure is criticized on two counts: (1) Faculty members feel unqualified to advise students whose subject matter intentions and interests are remote from their own, and (2) the system of instructing advisors has become perfunctory. Perhaps something between the former and present systems would be more satisfactory.

There are three alternative methods of selecting departmental advisors. In the first the student has a different advisor for each of his four years. The advisor is chosen from among the student's instructors for the year, thus making student-advisor contact easier.

In the second alternative, the student, after declaring a major, retains the same advisor for the remainder of his program. This plan has the advantage of long-time contact and perhaps the disadvantage of a less intimate relationship for any given semester.

A third alternative, involving the department chairman as advisor for all students, does not ensure competence in advising. Faculty members usually resent this system.

The Committee recommends a wider faculty participation in departmental advising. A system whereby the department chairman is the sole advisor is unsatisfactory. We further recommend that the student be assigned a permanent advisor upon declaration of his major.

The Professional Counsellor

The Division of Student Personnel provides the following positions and services to deal with special student problems which an advisor is not qualified to handle:

1. The Dean and Associate Deans of Students.
2. The Counselling Service.
3. The Testing and Placement Service.
4. The Financial Aids Office.

Unfortunately, many of the academic advisors and faculty in general are not aware of the functions of the Division of Student Personnel. Interpretation of entrance tests is a specific example. Since each student's test scores are provided for his advisor's file, presumably the advisor is expected to interpret them. However, the fact that many advisors are not trained to interpret the test scores suggests that a guide book similar to the one formerly used in the College of Liberal Arts should be issued to all advisors by the Division of Student Personnel.

Some advisors who have referred students to the professional counsellors have been left with a sense of incompleteness in the matter. Perhaps a more formal procedure for reporting back to the academic advisor would eliminate barriers to cooperation.

The Student Rules Book

It is not our intention to trace the history of the student rules established by the University Senate, but simply to indicate that the over-all philosophy underlying the enforcement of these rules is relevant to the effectiveness of advising. Recent modifications of the rules indicate that more discretion and responsibility are being given the advisor in dealing with student problems. We applaud this development and recommend its expansion.

The Academic Year

A university or college organizes its activities within the framework of an academic year which is usually divided into quarters or semesters. The term "quarter" is here used to mean a session lasting approximately three months, and the term "semester", a session lasting approximately four months. Four possible divisions of the academic year are these:

A. Two semesters.
B. Three semesters (trimester).
C. Three quarters.
D. Four quarters.

The Committee, in its interviews with the faculty, asked this question: "Do you think that a shift to the trimester or quarter (either the three-quarter or four-quarter) system would solve some of the University's problems in (a) use of physical facilities? (b) use of faculty time?"

Of the 102 individuals interviewed, 55 said yes (often somewhat qualified) to both (a) and (b), 26 said no, and 21 had no opinion. Of the 55 faculty members who seemed willing to alter the academic year, 24 preferred the quarter system and 31 favored the trimester system.

The University of New Hampshire operates on a two-semester basis. In 1960-61 its academic year will be 38 weeks long. These 38 weeks will be utilized approximately as follows: 30 weeks for classes (15 weeks a semester), 5 weeks for vacations, and 3 weeks for final examinations. Both semesters will be interrupted by vacations. During each semester students will normally carry five or six courses. The major educational advantage claimed for the semester is that it alone can provide the time which a student is thought to need for an adequate assimilation of his course material.

Other universities and colleges operate on a three-quarter basis. Dartmouth College, which has a typical three-quarter calendar, has a 37-week academic year. These 37 weeks are utilized approximately as follows: 30 weeks for classes (10 weeks a quarter), 5 weeks for vacations, and 2 weeks for final examinations. Each of the three registrations is accomplished in one day. With the exception of the Thanksgiving recess, long vacations fall between quarters and do not interrupt classes. The major variable in the organization of the quarter system is the student load. Among different institutions the load ranges from three to six (and even more) courses a quarter. The educational advantage claimed for a properly designed quarter is that it permits a student to concentrate his attention and energy upon a few courses. This advantage is lost where the course load is high.[13] For an effective quarter-system, a student load should not exceed three or, at the most, four courses a quarter; classes in each of these courses should meet half again as often as they do during a semester.

The Committee could find no data which clearly validated the educational claims made for either the quarter or the semester system. The committees at Dartmouth which recommended the adoption of a three-term (quarter) system were in the same dilemma:

> We have found it difficult to assess the validity of the argument that the more gradual assimilation made possible by the greater extension in time of a semester course (plus its intervening — and interrupting — recesses) is a significant educational asset. Our canvass of opinion in some seventeen colleges and universities (including several which had changed calendars rather recently) did not encourage the belief that this was an important factor in the balance sheet of experience at these institutions. It is perhaps unnecessary to stress that the joint committees would not advocate a three-term system without a reduction to three of the number of courses carried; most institutions with experience of the term or quarter system have programs of four — or even five — courses so that the remarkably even balance of their judgments as between semester and term systems is based on a comparison lacking an important feature of the program we propose.[14]

The Committee nevertheless thinks that students and the faculty become more involved in intensively taught quarter courses than they do in courses taught with the more leisurely semester approach. We also think that the sensible handling of vacations in the quarter system may outweigh such disadvantages as the additional registration and the problems of scheduling laboratories.

We therefore recommend that the University of New Hampshire consider the adoption of a three-quarter system in which the student load be limited to four courses and the equivalent of 12 semester credits for each quarter.

Both the three-semester (trimester) and four-quarter systems involve full-year operation of a university. Several universities operate on a four-quarter basis (Michigan State and Ohio State, for example) and one (The University of Pittsburgh) recently adopted the trimester system. There are powerful arguments for year-around operation: students could earn a degree in three years; an institution could make maximum use of its facilities; and the annual income from student fees could be increased by up to one third. It appears certain that most colleges and universities, including the University of New Hampshire, will, when faced with teacher shortages and enrollment pressures, move eventually to full-year operation. The Committee has been unable to detect either the desire or the need for such operation at the present time. It does suggest that the administration initiate the detailed planning which will permit a smooth transition to full-year operation when it becomes desirable.

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[13] The University of New Hampshire operated on a quarter system from 1919 to 1936. A high course load was permitted during each quarter.

[14] "An Educational Program for Dartmouth," *Dartmouth Alumni Magazine*, April, 1957.

Chapter 5. Faculty Activities

Introduction

IN their recommendation to the President that a study of the University's academic programs and teaching methods be undertaken, the Faculty Council and the Curriculum Committee included teaching loads and use of academic manpower among the areas for scrutiny. Specifically, they felt that the University should ascertain the following: (1) whether average teaching loads could be increased, perhaps by providing instructors with more sub-professional assistance, and (2) whether non-academic duties take up too much of faculty time.

In an effort to find answers to these inquiries, the Committee first concentrated on determining how faculty time is utilized. Various methods for obtaining comprehensive data on current use of faculty time were discussed with one of the Committee's consultants, Dr. John C. Stecklein.

The Committee decided to subject the faculty to a fairly detailed questionnaire (see Appendix 2). Questionnaires were submitted to 230 faculty members; 213 usable returns were obtained. The following discussion is derived from a detailed analysis of these 213 replies and informal discussion with faculty and administrators. The reader is advised to beware of arriving at hasty conclusions as a result of superficial examination of our data. Much of the information is based not on fact, but on the faculty's estimation of fact.

The compilation and tabulation of these data should be viewed as a beginning rather than as an end to the study of faculty activities. Although we use the data to propose some ways in which faculty time can be applied more effectively and to suggest a more accurate and equitable method of evaluating faculty loads, we hope that the colleges and departments will use the data as a springboard for their own self-evaluations of faculty time.

Distribution of Faculty Time

Total Time

The distribution of total hours per week spent by faculty in University activity during Semester II, 1958-59, is shown for each rank in Table 1. Two points brought out by this table are that average hours per work week are 58.4, and that variation among individuals and ranks is considerable.

Table 1. Distribution of Faculty Loads by Rank

	Number of Faculty by Hours Spent Per Week							
Rank	Number in Rank	Less Than 40	40-49	50-59	60-69	70-79	More Than 80	Average
Chairman	36	1	6	9	12	4	4	62.4
Professor	38	3	7	11	13	3	1	57.4
Associate	55	4	9	15	16	8	3	58.5
Assistant	56	3	10	23	12	5	3	56.9
Instructor	28	3	11	4	4	3	3	57.0
All Ranks	213	14	43	62	57	23	14	58.4

The Committee informally asked several faculty members whether the hours they reported represented reasonable loads. Most faculty members felt that loads were too heavy but comments varied. Some who had reported many hours felt their loads were moderate, while some who had reported relatively few hours felt they were excessively burdened.

The nature of assigned duties plays an important part in a faculty member's attitude. For example, one professor stated that the load situation had improved considerably in the last few years. To the question, "How much less time do you spend now than five years ago?" he paused, looked perplexed, and replied, "Just about the same time." Further probing uncovered the fact that since his department had acquired a laboratory technician and certain instructional equipment, he had been relieved of some non-professional duties and had devoted the time gained to teaching and research. In this case, a staff member's load had been redistributed without a decrease in time expended. In view of the wide variation in the distribution of loads, informal interviews with faculty have uncovered a feeling that loads are not equitably distributed in some departments.

A summary of the distribution of faculty time is shown in Figure 1. Each of the sub-topics will be further analyzed. These data are tabulated by department, college, and rank in Tables 2 and 3.

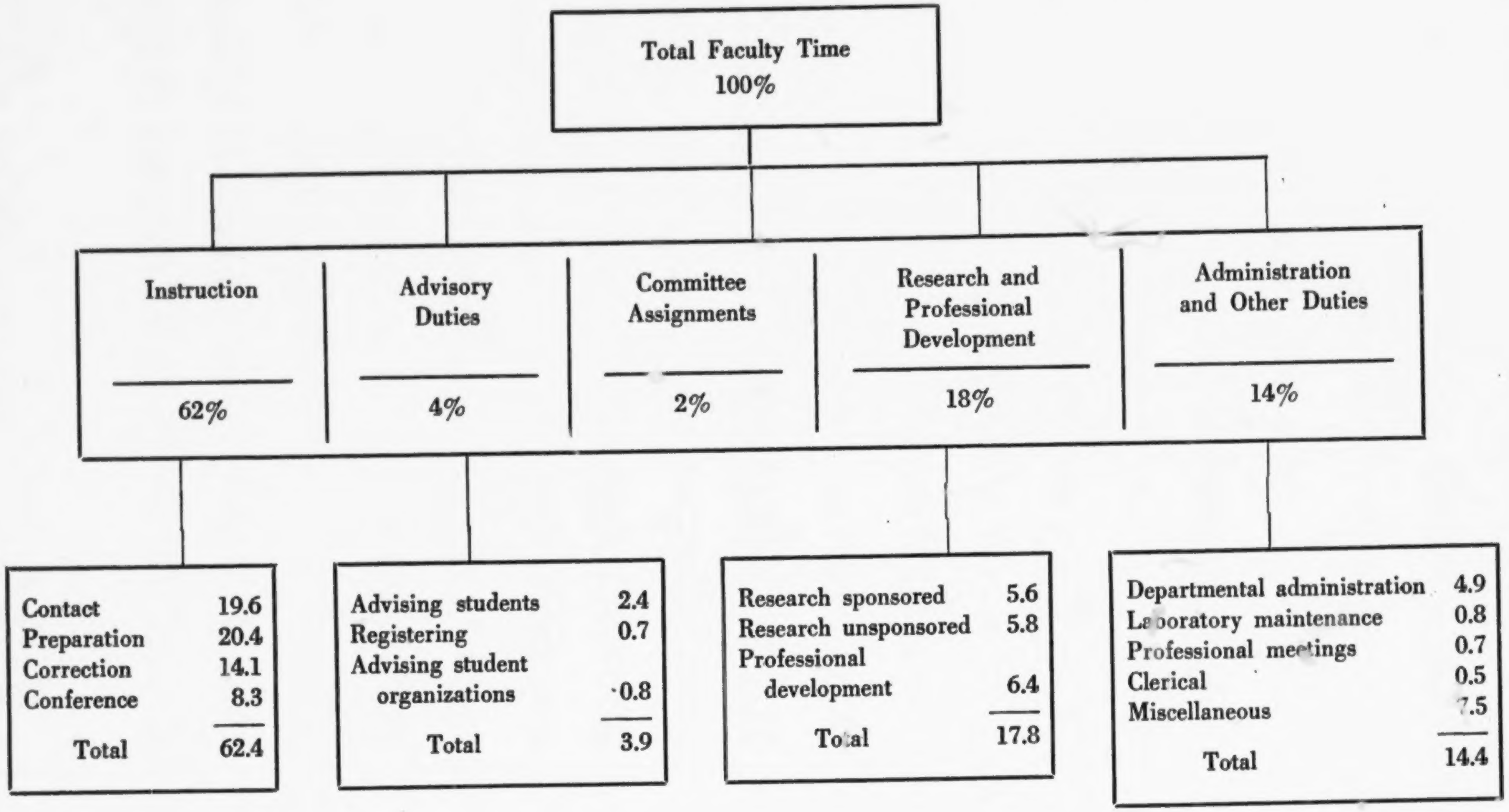
Instructional Time

Of the total faculty time, 62 percent is devoted to instruction, subdivided as follows:

Contact	19.6 percent
Preparation	20.4
Correction	14.1
Conference	8.3
Total	62.4

In estimating loads, many employ the "rule of thumb" relation that for each credit hour two additional hours are required, one for preparation and one for correction, making a total of three. This study showed a total of 3.8 hours per credit hour compared to 3.0. The allocation by rank is as follows:

Chairman	3.1 hours
Professor	3.4
Associate	3.9
Assistant	4.0
Instructor	4.8
All Ranks	3.8



Total Faculty Time
100%
Instruction
62%
Advisory Duties
4%
Committee Assignments
2%
Research and Professional Development
18%
Administration and Other Duties
14%

Contact	19.6
Preparation	20.4
Correction	14.1
Conference	8.3
Total	62.4

Advising students	2.4
Registering	0.7
Advising student organizations	0.8
Total	3.9

Research sponsored	5.6
Research unsponsored	5.8
Professional development	6.4
Total	17.8

Departmental administration	4.9
Laboratory maintenance	0.8
Professional meetings	0.7
Clerical	0.5
Miscellaneous	7.5
Total	14.4

Figure 1. Division of Total Faculty Time

Semester II, 1958-59

Table 2. Percentage Distribution of Total Load by College and Department
Semester II, 1958-59

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
College or Dep't.	Contact	Preparation	Exam Correction	Homework Correction	Term Paper Correction	Lab Report Correction	Total Correction (3, 4, 5, 6)	Conference	Total Instruction (1, 2, 7,8)	Advising Students	Registering	Advising Student Organizations	Total Advising (10, 11, 12)	Committees	Sponsored Research	Unsponsored Research	Professional Development	Total Research and Professional Development (15, 16, 17)	Administration and Other Duties	Total (9, 13, 14, 18, 19)
UNH	19.6	20.4	6.0	3.5	2.1	2.5	14.1	8.3	62.4	2.5	0.9	0.8	4.2	1.7	5.6	5.8	6.4	17.8	13.9	100
AG	12.9	14.0	2.6	1.4	2.2	2.3	8.5	4.7	40.1	2.6	0.5	0.7	3.8	2.6	17.5	10.6	3.4	31.5	22.0	100
Ag. Eco.	7.4	15.8	2.3	1.6	3.0	0.0	6.9	5.4	35.5	0.4	0.4	0.5	1.3	4.5	23.2	16.5	7.6	47.3	11.4	100
Ag. Eng.	17.4	19.4	1.7	1.5	1.0	4.3	8.5	0.0	45.3	0.5	3.9	2.4	6.8	8.2	23.2	0.0	6.8	30.0	9.7	100
Agron.	10.0	18.7	4.3	1.9	0.8	2.3	9.3	3.4	41.4	3.6	0.3	0.1	4.0	2.2	6.8	19.0	2.1	27.9	24.5	100
An. Sci.	11.6	14.7	3.7	2.5	4.9	2.4	13.5	6.7	46.5	4.0	1.1	1.2	6.3	3.1	0.0	2.5	1.8	4.3	39.8	100
Bio. Ch.	12.3	18.4	3.2	0.3	2.2	1.1	6.8	4.4	41.9	2.7	0.3	0.0	3.0	1.7	0.0	21.8	0.0	21.8	31.6	100
Bot.	16.2	13.6	3.0	0.0	0.9	2.6	6.5	2.8	39.1	1.7	0.1	1.3	3.1	4.7	13.0	16.9	3.9	33.8	19.3	100
Dy. Sci.	14.4	10.7	1.6	0.0	0.7	2.6	4.9	1.0	31.0	0.7	0.2	0.7	1.6	2.0	35.4	3.3	0.0	38.7	26.7	100
Ent.	12.9	8.2	2.6	1.8	0.0	3.1	7.5	2.6	31.2	0.2	0.1	0.0	0.3	1.8	38.4	7.7	7.2	53.3	13.4	100
For.	18.0	14.5	3.1	2.0	0.6	2.9	8.6	5.2	46.5	5.0	0.4	0.6	6.0	1.0	14.2	7.6	1.7	23.5	23.0	100
H. Ec.	18.4	17.3	2.1	3.1	7.9	4.0	17.1	10.4	63.2	4.0	1.1	1.6	6.7	1.5	9.0	0.8	2.7	12.5	16.1	100
Hort.	7.9	9.6	2.1	0.9	0.9	0.9	4.8	3.7	26.0	2.3	0.0	0.5	2.8	2.9	29.2	13.9	1.9	45.0	23.3	100
Py. Sci.	7.9	8.1	1.7	0.1	0.1	1.2	3.1	3.1	22.2	2.6	0.2	0.4	3.2	1.4	26.0	14.8	5.2	46.0	27.2	100
LA	20.5	23.0	8.0	3.6	3.1	2.0	16.7	9.5	69.7	2.7	1.0	0.6	4.3	1.6	1.9	5.5	7.9	15.3	9.1	100
Arts	21.7	17.5	3.7	3.5	2.6	11.6	21.4	7.9	68.5	2.0	1.3	0.6	3.9	1.1	0.7	3.0	8.0	11.7	14.8	100
Bact.	25.4	13.5	5.5	0.0	1.1	2.6	9.2	6.7	54.8	5.5	0.1	0.2	5.8	2.8	25.4	0.0	5.5	30.9	5.7	100
Eco. BA	27.8	19.7	13.2	2.2	2.6	1.4	19.4	9.1	76.0	2.2	1.2	1.0	4.4	0.5	0.5	4.7	3.8	9.0	10.1	100
Ed.	12.9	17.3	3.7	3.3	4.1	0.0	11.1	23.3	64.8	4.4	0.3	0.0	4.7	5.3	1.0	9.8	8.7	19.5	5.7	100
Eng.	16.3	21.0	8.4	9.6	3.8	0.6	22.4	11.7	71.4	2.3	1.1	0.7	4.1	1.3	0.0	6.5	9.6	16.1	7.1	100
Geol.	24.6	25.1	8.6	1.0	1.7	3.0	14.3	5.6	69.6	1.3	0.8	0.3	2.4	2.4	2.4	5.9	8.7	17.0	8.6	100
Gov.	19.3	25.3	7.0	1.6	4.2	0.2	13.0	7.0	64.6	2.1	1.6	1.2	4.9	2.6	1.4	7.4	13.5	22.3	5.6	100
Hist.	21.7	26.9	8.7	0.0	5.2	0.0	13.9	8.7	71.2	2.7	1.4	0.9	5.0	0.9	0.0	5.6	11.7	17.3	5.6	100
Hot. Ad.	16.2	24.3	11.4	1.6	3.2	6.5	22.7	4.9	68.1	17.8	1.9	4.9	24.6	6.5	0.0	0.0	0.0	0.0	0.8	100
Lang.	18.8	27.9	11.1	5.2	4.1	0.0	20.4	6.3	73.4	2.4	0.7	0.2	3.3	1.0	0.0	5.0	7.1	12.1	10.2	100
Mus.	27.8	27.2	4.0	2.6	0.3	0.2	7.1	9.8	71.9	1.6	0.6	0.5	2.7	1.1	0.0	4.3	8.8	13.1	11.2	100
Phil.	15.7	28.8	6.6	0.0	0.0	0.0	6.6	27.5	78.6	0.7	0.9	0.0	1.6	0.2	0.0	5.2	3.9	9.1	10.5	100
Psych.	23.2	14.4	7.4	0.0	4.8	1.3	13.5	8.8	59.9	3.5	1.0	0.0	4.5	4.5	3.5	6.6	6.5	16.6	14.5	100
Soc.	15.7	30.4	8.8	1.2	3.0	0.0	13.0	7.7	66.8	2.0	1.2	0.2	3.4	1.6	0.0	9.6	5.8	15.4	12.8	100
Zool.	21.1	29.1	8.0	0.8	0.6	2.0	11.4	5.4	67.0	3.4	0.8	0.9	5.1	1.0	10.5	3.3	4.9	18.7	8.2	100
TECH	22.2	22.9	6.4	5.7	0.7	4.1	16.9	10.2	72.2	1.6	0.7	0.3	2.6	1.4	4.6	2.6	6.2	13.4	10.4	100
Ch. Eng.	18.8	18.2	3.7	3.2	1.1	2.0	10.0	12.5	59.5	2.3	0.7	1.1	4.1	4.5	0.0	0.0	22.8	22.8	9.1	100
Chem.	26.1	14.6	5.8	2.5	0.4	2.3	11.0	12.0	63.7	1.5	0.5	0.3	2.3	1.2	6.4	8.0	5.1	19.5	13.3	100
CE	22.9	29.7	6.0	9.3	0.3	6.2	21.8	4.9	79.3	2.2	1.2	0.2	3.6	0.6	0.0	1.2	10.2	11.4	5.1	100
EE	20.6	20.6	3.9	4.2	0.3	7.0	15.4	8.3	64.9	2.2	1.3	0.7	4.2	2.1	7.5	2.0	2.6	12.1	16.7	100
Math.	19.6	29.0	9.7	5.1	0.2	0.0	15.0	17.6	81.2	1.2	0.2	0.0	1.4	0.9	3.0	1.0	6.1	10.1	6.4	100
ME	26.3	19.5	7.9	9.1	1.5	8.5	27.0	6.4	79.2	2.0	0.8	0.3	3.1	1.2	0.1	2.7	5.4	8.2	8.3	100
Phys.	18.7	25.7	4.0	4.8	1.0	1.8	11.6	8.2	64.2	0.7	0.3	0.0	1.0	1.0	14.2	2.5	2.0	18.7	15.1	100

Table 3. Percentage Distribution of Total Time for the Major Divisions of Work by Rank

Rank	Administration and Other Duties	Research and Professional Development	Committees	Advising and Registering	Instruction Including Contact, Preparation, Correction, Conference
Chairman	29%	15%	3%	7%	46%
Professor	8	22	2	3	65
Associate	11	20	2	4	63
Assistant	15	15	1	4	65
Instructor	7	14	1	2	76
All Ranks	14	18	2	4	62

The above figures do not distinguish between lecture and laboratory courses. A more detailed separation will be made later.

The credit-hour and student-credit hour have been suggested as indicators of instructional loads. Our study has indicated that they would not be satisfactory.

Contact Time. At present, contact time is tied fairly tightly to credits. Instructors meet with lecture sections one hour for each credit and with laboratory sections two to three hours per credit. A modification in this arbitrary relationship was proposed by Dr. Coombs. He suggested that one way of relieving pressure on faculty time is to reduce the number of class meetings per credit. Independent study plans generally call for fewer class meetings and more outside work by the student for the same number of credits.

Preparation Time. Preparation time was the most difficult for the faculty to determine. Preparation requirements vary from day to day and it is difficult to estimate an average for the semester.

The relationship of preparation hours to rank, course level, previous experience with the course, and type of instruction is shown in Table 4.

Table 4. Preparation Hours Per Credit

	Lecture	Laboratory
RANK		
Chairman	1.1	0.9
Professor	1.2	1.0
Associate	1.5	1.3
Assistant	1.4	1.3
Instructor	1.4	1.3
All Ranks	1.3	1.2
COURSE LEVEL		
0—24	1.3	1.4
25—49	1.3	1.1
50—99	1.5	1.0
100—200	1.1	1.0
All levels	1.3	1.2
YEARS PREVIOUSLY TAUGHT		
0	1.9	1.3
1	1.7	1.1
2	1.6	1.8
3	1.4	1.8
4	1.3	1.2
5 or More	1.2	1.1
Total	1.3	1.2

Although most sections of this table show a definite trend, there are exceptions. In the breakdown by course level, graduate courses (numbered over 100) show a surprisingly small number of preparation hours. The inclusion of reading courses, which require less preparation than lecture courses, may account for the results.

In the breakdown by years-previously-taught, the third and fourth year of laboratory teaching requires more time than the first and second. Perhaps the laboratory instructor first follows the procedures set down by his predecessor, but subsequently assumes responsibility for the laboratory and begins to make contributions of his own.

The relationship of preparation hours to the number of sections of the same course taught by one individual is shown in Table 5.

Table 5. Effect of Multiple Sections on Preparation Time

Number of Sections		1	2	3	4	All Sections
Preparation Hours per Credit	Lecture	1.5	1.0	0.9	0.8	1.3
	Laboratory	1.2	1.2	1.2	1.2	1.2

There is no significant correlation between the number of students in a section and preparation time.

Correction Time. Many faculty members expressed to the Committee considerable concern about correction time. Correction time comprised a significant portion (14 percent) of the total load, subdivided as follows:

Chairman	9.5 percent
Professor	13.8
Associate	13.7
Assistant	14.7
Instructor	20.8
All Ranks	14.0

The percentage distribution of total correction time for each rank is shown in Table 6.

Table 6. Percentage Analysis of Correction Time

Rank	Examinations	Homework	Theses Term Papers	Laboratory Reports
Chairman	36.3	18.7	25.4	19.6
Professor	56.3	17.1	12.6	14.0
Associate	44.3	28.9	13.7	13.1
Assistant	44.2	20.9	13.3	21.6
Instructor	31.7	34.5	14.2	19.6
All Ranks	42.9	24.6	14.9	17.6

Table 7 shows the percentage of total time spent by the faculty and grading assistants.

Table 7. Percentage Comparison of Faculty and Assistant Correction Times

Rank	Faculty	Grading Assistants	Undergraduates, Lay Readers
Chairman	82.0	9.5	8.5
Professor	81.1	6.5	12.4
Associate	86.9	4.0	9.1
Assistant	84.3	3.9	11.8
Instructor	93.4	1.0	5.6
All Ranks	85.7	4.6	9.7

The recipients of the questionnaire were asked to indicate whether or not they desired additional graders. Their responses are shown in Table 8.

Table 8. Requested Grading Assistance

	Those Who Used Graders			Those Who Did Not		
Rank	Yes	?	No	Yes	?	No
Chairman	5	2	7	5	0	17
Professor	6	0	5	6	1	20
Associate	9	0	8	12	1	25
Assistant	10	1	8	7	2	28
Instructor	3	0	2	4	0	19
All Ranks	33	3	30	34	4	109

In summary, Table 8 shows that 67 desire additional graders, 139 do not, and 7 have no opinion.

Better than half of those who already employ graders wish to employ more. Most of those not now using graders do not wish to. The reasons given by those who desire to hire grading assistance, but are unable to do so, are lack of qualified graders (34 percent) and lack of funds (66 percent).

There are not enough graduate assistants to fill the need for "qualified" graders. There is, however, available talent in Durham which could be used, such as faculty wives and other college-educated individuals.

Those who do not wish assistance for correction offer the following reasons for their position: 1. The judgment required for evaluation is too subjective. 2. Close contact must be maintained with the student. 3. It would take about as long to explain what is required to the grader as to do the job oneself.

Since the problem also involves finances, it is necessary to inspect the economics of the situation. Based upon published figures for average salaries for 1958-59, Table 9 shows the cost of faculty grading.

With the considerable increase in salaries in 1959-60, we estimate that today this figure would be well over $200,000 per year. It would appear that we could well afford to pay considerably increased wages for grading assistants if and when faculty time is required elsewhere.

Table 9. The Dollar Value of Correction Time

Rank	Percent of Total Time per Rank Devoted to Correction	Dollar Value of Correction Time per Year
Chairman	9.5	$27,000
Professor	13.8	42,000
Associate	13.7	49,400
Assistant	14.7	45,900
Instructor	20.8	25,400
All Ranks	14.0	$189,700

Although the University stipends to graduate assistants are comparable to those of other land-grant institutions, these are not sufficiently attractive or plentiful to furnish the numbers required.

Some argue that the use of graduate students is not economical, for an increased graduate enrollment requires more staff, more courses, more correction, etc. Some departments, however, could double or triple their graduate population with negligible increase in staff-time requirements, making more graders available. It should further be possible with some cooperation to have graduate students assisting in departments which are closely related to their own and in which graduate expansion is not at the moment feasible.

The Committee recommends that the faculty re-examine its correction procedures to determine whether they are in the best interests of the University. It recommends that departments use every possible means to provide faculty assistance and that the University reappraise hourly wage rates provided to student graders and lay readers and stipends provided to graduate assistants.

Conference Time with Students. The percentage of total time spent in conference with students is subdivided as follows:

Chairman	7.2 percent
Professor	10.8
Associate	8.5
Assistant	8.5
Instructor	10.3
All Ranks	8.3

The conference time reported for lecture courses was 0.6 hours per credit hour and for laboratory courses 0.4 hours per credit hour.

Attempts to correlate conference time with factors used in the analysis of correction and preparation times have proven unsuccessful.

Advisory Duties

The percentage of total time spent on advisory duties is subdivided as follows:

Chairman	7.4 percent
Professor	2.6
Associate	3.6
Assistant	3.6
Instructor	2.3
All Ranks	3.9

The distribution of time spent in advisory duties for each rank is shown in Table 10.

Table 10. Percentage Analysis of Advisory Duties[1]

Rank	Advising Students	Registering	Advising Student Organizations
Chairman	66.2	27.0	6.8
Professor	65.4	19.2	15.4
Associate	63.9	16.7	19.4
Assistant	47.2	11.1	41.7
Instructor	52.2	30.4	17.4
All Ranks	61.5	18.0	20.5

The number of persons engaged in advising students and the hours per week spent are tabulated in Table 11.

Table 11. Time Spent by the Faculty in Advising Students

Number of Hrs./Week	0	0.5	1	1.5	2	2.5	3	3.5	4	5	6	9–12	Total 315
Number of Faculty	89	12	37	7	29	2	13	1	6	8	5	4	213

The number of faculty engaged in registering students and the hours per *semester* they spent are shown in Table 12.

Table 12. Time Spent by the Faculty in Registration

Number of Hrs./Sem.	0	1–5	6–10	11–15	16–20	21–25	26–30	31–35	36–40	Total 1482
Number of Faculty	95	31	38	11	22	5	5	3	3	213

The 118 faculty members (213 minus 95) involved in registration spent an average of 12.6 hours per semester on this activity. In spite of the fact that only a small percentage of its total time was devoted to this activity, the faculty expressed considerable dissatisfaction with the registration process. However, there has been considerable recent effort to remove some objectionable features of the process.

We recommend a continuing effort to eliminate the advisor's responsibility for clerical aspects of registration.

The number of faculty working with student groups and the time spent are indicated in Table 13.

Table 13. Time Spent by the Faculty Advising Student Organizations

Number of Hrs./Week	0	0.5	1	1.5	2	2.5	3	5	18	Total 965
Number of Faculty	155	12	25	3	12	1	2	2	1	213

The 58 faculty members (213 minus 155) counseled the types of organizations shown in Table 14.

Table 14. Student Organizations Advised

Organization	Number of Faculty	Average Hours Per Week
Professional	20	1.5
Honor	20	0.9
Academic	7	0.6
Fraternity	4	2.0
Sorority	3	2.0
Religious	2	1.0
Social	10	2.8

Committee Assignments

Committee assignments require 2 percent of the total faculty time and are distributed as shown in Table 15.

Table 15. Number of Committee Assignments Per Faculty Member

Number of Committees	0	1	2	3	4	5	6	7	16	Total
Number of Faculty	79	64	28	24	9	3	4	1	1	213

In terms of hours per week, the distribution is shown in Table 16.

Table 16. Time Devoted to Committee Work

Number of Hrs./Week	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6–8
Number of Faculty	80	46	30	15	11	7	6	5	4	2	2	1	4

Seventy-five percent of the assignments were considered profitable, 17 percent questionable, and 8 percent unprofitable. Of the 66 committee assignments reported as questionable or unprofitable, the following were cited more than once (number of times indicated by figure in parentheses):

Committee on Gifted Students — College of Liberal Arts	(3)
Policies Committee — College of Liberal Arts	(3)
Summer Session Committee	(3)
T. V. — Liberal Arts and Technology	(3)
Allied Arts Cooperative Committee	(2)
Curriculum Committee — College of Agriculture	(2)
Executive Committee — College of Agriculture	(2)
Executive Committee — College of Liberal Arts	(2)
Freshman Board of Advisors	(2)
Lectures and Concerts Committee	(2)
Library Committee	(2)
Special Committee on Speech	(2)
Student Health Committee	(2)
Student Organization Committee	(2)
University Committee on Civil Defense	(2)

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[1] For a discussion of the advisory system at the University, see pp. 23-24.

We have made no effort to query all those who responded negatively, but questioned some. Their comments indicated that: 1. The committee was a puppet committee, dominated by an individual. 2. The committee's assignment was of no interest to him. 3. The committee had no useful purpose or reason for being.

We feel that committee service has value. It provides the opportunity to view the broader aspects of the University's operation, to have a voice in formulating policy, and to exchange ideas with faculty members with whom one does not ordinarily come in contact.

Since 37 percent of those reporting did not serve on any committee while some were overburdened, a wider distribution of committee assignments is desirable. The Committee recommends that faculty members shall be assigned to not more than two committees at the college or University level except for those assignments which are normally associated with administrative positions. Departmental committees may be assigned in addition to the above. Membership in the University Senate shall not be considered as a committee assignment, but a non-University committee in which a faculty member is seated as a representative of the University shall be regarded as a University committee. If a faculty member who is carrying the maximum allotment is nominated for an additional assignment, he should refuse it or seek release from a previous and presumably less interesting commitment.

The Committee recommends that the function, purpose, and the *modus operandi* of all University committees should be reviewed annually by the Faculty Council. Other committees should be reviewed annually by their presiding officers.

Research and Professional Development

The percentage of total faculty time devoted to research and professional development is:

Sponsored research*	5.6 percent
Unsponsored research	5.8
Professional development	6.4
Total	17.8

* Research supported by outside contract.

The distribution by rank is shown in Table 17.

Table 17. Percentage Distribution of Time Devoted to Research and Professional Development

Rank	Research Sponsored	Research Unsponsored	Professional Development
Chairman	27.5	36.9	35.6
Professor	29.0	34.4	36.6
Associate	41.7	27.4	30.9
Assistant	37.7	27.9	34.4
Instructor	2.1	41.4	56.5
All Ranks	31.5	32.6	35.9

The distribution of these efforts for the 213 persons responding is illustrated in Table 18.

In any given semester many faculty members are not engaged in research but in some other scholarly pursuit or on some special assignments. However, a lack of participation in research by 95 persons and professional development by 76 persons seems excessive.

The Committee recommends that at least one day per week of a faculty member's time should be freed for research or professional development. We strongly urge that this day be unfragmented.

The average time spent by the entire faculty in these pursuits is 10.4 hours per week, which is slightly more than our recommended minimum. However, it should be noted that 61 percent of the faculty expended less than 8 hours per week. It is not intended that additional time be provided for the 61 percent at the expense of those who exceed the minimum time. Such a recommendation would indicate a disregard for the specific needs of departments and special capabilities of individuals.

Administration and Other Duties

The percentage of total faculty time devoted to administrative and other duties is:

Departmental administration	4.9 percent
Laboratory maintenance	.8
Professional meetings	.7
Clerical	.5
Miscellaneous*	7.5
Total	14.4

* This includes departmental meetings, seminars, lectures, publications, visits to high schools, participation in thesis committees, judging, and informal faculty conferences.

Chairmen accounted for about 86 percent of the time for departmental administration. If the total administrative time were equally divided among the 36 departments, each would have spent 17 hours per week. There seems to be little correlation between administrative time and the number of members in a department. Those departments which have laboratories or are heavily engaged in sponsored research have the largest administrative time requirements.

Thirty-three persons spent an average of 3.1 hours per week on laboratory maintenance. Many took the opportunity to comment on their need for assistance in maintaining laboratories. Some departments which do not have sufficient work to justify a full-time technician find that either undergraduates are insufficiently qualified, or graduate students cannot be attracted with the stipends now offered. The sharing of a full-time technician by two or more departments is a possible solution.

Table 18. Number of Hours Devoted to Research and Professional Development

	Hours/Week	0	1	2	3	4	5	6	7	8-9	10-19	20-29	30-45
Number of Faculty	Research	95	8	8	11	6	5	6	2	8	42	11	10
Number of Faculty	Professional Development	76	8	26	18	16	33	5	1	6	19	5	0

Planning of Faculty Loads

Effective use of faculty calls for systematic planning of loads. In considering this topic, the Committee referred to the following statement in the *Faculty and Staff Handbook:*

> As a standard for administrative guidance, a normal full-time teaching schedule is regarded as twelve credit hours per week, although the schedule of individual faculty members may vary either above or below this figure according to the nature of the subject matter and the non-teaching responsibilities involved. It is recognized that faculty responsibilities cannot always be carried on according to rigid daily or weekly schedules.[2]

This is certainly a most liberal statement and permits a considerable degree of flexibility. In spite of the freedom for judgment that this policy permits, there are department chairmen who worry about maintaining exactly 12 credit hours for their staff and who are concerned that they may be called upon to explain why they have not complied with the formula.

These considerations, as well as the detailed load study already discussed, have led to the following set of recommendations:

1. Department chairmen shall plan assignments based on the liberal view expressed in the *Faculty and Staff Handbook.* Less emphasis should be placed on credit hours and more consideration should be given to the following:

a. The ability and experience of the instructor.
b. The level and nature of the course.
c. The instructor's previous experience with the course.
d. The availability of graduate and grading assistants.
e. The number of multiple sections.
f. The number of students in each section.
g. All other duties performed for the department, college, and University.
h. The instructor's need for professional development.

Some instructors would combine two large sections into a single section if chairmen would credit them with additional time above the usual allowance for a single course. Since this change is in the best interests of the University and is fair to the instructors, we see no reason why this should not be done. The *Faculty and Staff Handbook* certainly permits it. The college deans whom we have queried are most receptive to this idea.

2. The present Instructor's Report Form should be modified to include an estimate of each part of the instructional and non-instructional load in terms of hours per week.

An example of such an estimate might be as follows:

Instruction	30 hours/week
Advisory Duties	3
Committees	2
Research	8
Professional development	4
Administration	2
Other Duties	3
Total	52 hours/week

The individual instructor should have the opportunity to indicate fully the time required by duties which he can merely mention in the present Instructor's Report Form. This would also permit the instructor to evaluate his own efforts. A more detailed estimation of loads would provide for better balance within departments and would permit periodic reviews of the faculty load problem, and would permit the instructor to evaluate his own efforts.

3. All graduate instruction shall be considered and counted as part of the instructor's load. Some years ago it was a policy in many departments that, if a graduate program were not economically justifiable, those instructors who wished to further such a program were permitted to do so only if they were willing to carry graduate courses on top of their regular load. Unfortunately, there are still vestiges of this policy in effect. There is no doubt that graduate programs are expensive to initiate and develop, but this expense should not be borne by the faculty.

4. Consideration should be given to the reinstatement of the policy of announcing assignments for standing committees of both the Senate and the Administration simultaneously with the seating of the newly-elected Senate in June. This procedure would permit the department chairmen to take committee assignments into account when planning loads for the next academic year.

5. The instructor's signature should be required on the Instructor's Report Form. It should be announced as policy that the instructor is to be consulted in regard to his assignments. Furthermore, his signature establishes that he and his department chairman have reached an agreement.

Services

The questionnaire asked for specific information in regard to secretarial and clerical services and solicited suggestions in regard to the improvement of services and facilities in general. Comment was profuse, 208 comments pertaining to 30 different subjects being received.

In addition to the comments and data provided by the faculty, suggestions were solicited by personal interview from each department and college secretary. We also inquired of each secretary the nature of her duties and the office equipment available to her.

It was immediately apparent that the Committee could not delve into all service functions and operations. We decided to limit our investigations to those areas which pertained most directly to faculty time.

In the table below we have shown how much secretarial time on the average each faculty member uses and how much more each needs.

Table 19. The Demand for Secretarial Time

Rank	Present Utilization (hours/week)	Additional Time Requested (hours/week)
Chairmen	18.8	6.9
Professors	3.7	2.5
Associates	3.5	2.3
Assistants	2.6	1.6
Instructors	1.0	0.7

The distribution of secretarial time is shown in Table 20.

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[2] Faculty and Staff Handbook, Article IX, Section 9, Sub-section 2, p. F 26.

Table 20. The Distribution of Secretarial Time

Secretarial Time Used (hours/week)	0	1	2	3	4	5	6	8	10–19	20–29	30–39	Total 1187.8
Number of Faculty	43	44	32	25	9	7	6	6	19	13	9	213

The additional hours (584 hours per week) requested by the faculty would require the services of 14.6 secretaries. At the lowest present wage scale, this would amount to about $35,000 per year. It should be possible to provide the equivalent service with the addition of very few permanent personnel and at a fraction of the above figure. The following methods are suggested.

One method is a greater use of student secretaries assisting departmental or college secretaries. Obvious as this solution may seem, we have found only one department (other than those who cooperate in the secretarial studies program) which has relied on student secretaries. The chairman of this department is convinced of the values of student secretarial help. A survey in Smith Hall, one of the smallest dormitories for women, has shown that 28 students would be willing to work a total of 232 hours per week, furnishing the equivalent of 5.8 full-time secretaries. One possible use of student secretarial help would be as mobile secretaries shared by several departments in one building.

Another method would be the provision of more office equipment in each building for the use of the faculty and staff. The most useful items would be a duplicator and a photocopier. Our survey of office equipment uncovered a total of five duplicators on the campus. Only two of these machines were purchased by University funds. University policy restricting departmental purchase of duplicating equipment has been unrealistic. Economically it has been of questionable merit, it has stifled faculty productivity, and it has been ostrich-like in banning the purchase of departmental equipment while providing ink and paper for privately-owned machines. This policy should be changed.

Our suggestion for a decentralization of duplicating facilities in no way reflects unfavorably on the Printing and Duplicating Service, for this department has been highly commended in every quarter. It is merely our contention that a centralized service must operate on a longer-range schedule than is often compatible with faculty needs.

Photocopying equipment has been recommended for each building because many secretaries have told us that they spend considerable time typing copies of technical articles, abstracts, animal pedigrees, etc.

As a third method, faculty members in each department should review their utilization of secretarial time. Several secretaries commented that although they were relatively free in the morning when the faculty members were in class, they were unable to keep up with faculty demands in the afternoon. In a few extreme cases, one or two faculty members monopolized the secretary's afternoon with dictation.

The obvious remedy is better planning and perhaps the use of dictographic machines, which were available in almost every office but were reported to be rarely used.

We recommend the formation of a Committee for Staff Services. The functions of this committee would include a study of all services (except those for which special committees are designated) provided by the University, consideration of the utilization of automatic equipment, and circulation of information about available services. This Committee for Staff Services should include one representative from the Business Office and one faculty member from each college.

Additional topics which might be considered by this committee could include the establishment of a secretarial pool, a University draftsman, a calculator pool, and inventory assistance.

In the discussions with department and college secretaries, a question concerning the keeping of accounts was raised. Department and college secretaries spend a total of about 120 hours a week in keeping accounts. Since the Business Office keeps the same accounts, it appears that this is a case of needless duplication. The Business Office, however, performs a fiscal function in which up-to-date posting and the frequent issuance of statements are not essential, whereas the department performs a service function (to itself) in which current balances are more important than extreme accuracy. It would seem that the Business Office might perform both functions with far more efficiency than the present arrangement allows. This would permit release of secretarial time to the faculty.

PART TWO

Chapter 6. The Curriculum: Comments and Data

Introduction

ANY attempt to study and evaluate problems of curriculum and time-space utilization requires considerable data. As appears to be the case with most universities, such data at the University of New Hampshire are scattered widely or do not exist in usable form. Data dealing with both aspects of the problem have been compiled and are presented in two sections, one dealing with curriculum matters and the other with time-space utilization.

This has been done with the assistance and cooperation of Miss Doris Beane, Assistant for Institutional Studies, and Mrs. Betty Laramie. The operational procedures were essentially those listed in *Manual for Studies of Space Utilization in Colleges and Universities* by J. D. Russell and J. I. Doi (American Association of Collegiate Registrars and Admissions Officers, Athens, Ohio, 1957), and those used at the University of Minnesota by the Bureau of Institutional Research. Much of the format of the time-space section of this report has been suggested by "The Utilization of Instructional Space in the State University System of Florida, Fall, 1958", Board of Control, Tallahassee.

Data for the curriculum study were taken from the time and room schedules and the instructors' grade sheets and from data on file in the Registrar's Office. A survey was made of each room available for regularly scheduled class activities. These data were placed on two separate sets of punch cards and suitably coded. They were sorted manually.

It is strongly recommended that the University maintain an active file of such data as a continuing activity. This file should be extended to all University space. A curriculum survey might well be made at five-year intervals. Acquisition of IBM punch card equipment would make it possible to maintain such data on a current basis.

It must be emphasized that in any method using large numbers of punched cards, checking original data is difficult if not impossible. We have attempted to keep tabular errors at a minimum and hope that any errors which may be found will prove to be minor.

An additional warning is advisable. It is often possible to reach unwarranted conclusions from tabulated data such as are presented here. The comments which are listed under the several topics to be discussed are intended as suggestions for future study and indications as to areas which appear to be out of line. Whether or not they are justified must sometimes be determined by subsequent study.

It was important to obtain information about trends within the University. Consequently, 1952-53 was selected as a reference year. Since many courses are presented on an alternate-year basis, an even-odd year was selected to match the test year, 1958-59. Certain specific items in the time-space study will be out of date because of the move to new buildings, but the general trends will be only slightly affected.

Summary of Student Enrollment

Table 21 presents a summary of the numbers of students enrolled during Semester I in 1952-53 and 1958-59 for each class and for each college. The corresponding percentage distribution is shown in Table 22 and the percentage change from 1952-53 to 1958-59 is shown in Table 23.

COMMENT. There has been an overall increase of 20 percent in enrollment during this period, the greatest increase being the 42 percent in the College of Technology. On the other hand, there has been a 15 percent decrease in the College of Agriculture. The number of graduate students in all colleges has increased, the greatest increase again being in the College of Technology. Some speculation concerning the relatively large percentage change in the sophomore year data seems in order. Have standards for promotion from the freshman to the sophomore year changed since 1952-53, has the quality of instruction improved, or is this a coincidence?

Table 21. Number of Students Enrolled for Semester I in 1952-53 and 1958-59

Class	Agriculture 52–53	Agriculture 58–59	Liberal Arts 52–53	Liberal Arts 58–59	Technology 52–53	Technology 58–59	Total 52–53	Total 58–59
Freshman	93	76	579	670	199	245	871	991
Sophomore	59	64	446	628	110	147	615	839
Junior	67	41	463	520	81	140	611	701
Senior	66	61	441	500	87	128	594	689
Special	15	5	49	58	5	12	69	75
Graduate	24	28	100	123	35	64	159	205
Total	324	275	2078	2499	517	736	2919	3510

Table 22. Percentage Distribution of Students for Semester I in 1952-53 and 1958-59

Class	Agriculture 52–53	Agriculture 58–59	Liberal Arts 52–53	Liberal Arts 58–59	Technology 52–53	Technology 58–59	Total 52–53	Total 58–59
Freshman	3.2	2.2	19.8	19.1	6.8	7.0	29.8	28.3
Sophomore	2.0	1.8	15.3	17.9	3.8	4.2	21.1	23.9
Junior	2.3	1.2	15.8	14.8	2.8	4.0	20.9	20.0
Senior	2.3	1.8	15.1	14.2	3.0	3.6	20.4	19.6
Special	0.5	0.2	1.7	1.6	0.2	0.3	2.4	2.1
Graduate	0.8	0.8	3.4	3.5	1.2	1.8	5.4	6.1
Total	11.1	8.0	71.1	71.1	17.8	20.9	100.0	100.0

Table 23. Percentage Change in the Number of Students Enrolled for Semester I, from 1952-53 to 1958-59

Class	Agriculture	Liberal Arts	Technology	Total
Freshman	—18	+16	+23	+14
Sophomore	+ 8	+41	+34	+36
Junior	—39	+12	+73	+15
Senior	— 8	+13	+47	+16
Special	—67	+18	+140	+ 9
Graduate	+ 2	+23	+83	+35
Total	—15	+20	+42	+20

Number of Declared Majors

Table 24 presents a listing of the declared majors for 1958-59 for each class as well as the number of graduate students and the degrees awarded.

COMMENT. Students in general do not declare a major before the sophomore year and changes occur frequently. The numbers of majors in several departments, especially in the College of Agriculture, are quite low.

Table 24. Number of Declared Majors and Degrees Awarded, 1958-59

Department	Freshman	Sophomore	Junior	Senior	Graduate	Bachelor	Master	Doctor of Philosophy
College of Agriculture								
Agricultural Economics	0	1	1	2	5	0	1	0
Agricultural Engineering	6	2	1	1	0	1	0	0
Agricultural Teacher Preparation	1	0	1	3	0	0	0	0
Agronomy	2	2	1	2	2	2	0	0
Animal Science	2	4	6	4	3	4	0	0
Biochemistry	2	0	2	1	6	1	1	0
Botany	0	0	2	1	7	0	1	0
Dairy Science	2	1	2	6	0	4	0	0
Entomology	0	0	1	0	0	0	0	0
Forestry	23	14	16	20	3	16	0	0
General Agriculture	10	3	5	7	0	7	0	0
Home Economics	16	6	8	12	0	10	1	0
Horticulture	5	1	6	1	5	2	0	2
Mechanized Agriculture	2	0	4	3	0	16	0	0
Poultry Science	6	4	1	2	0	0	0	0
Pre-veterinary	7	3	2	1	0	0	0	0
College of Liberal Arts								
The Arts	0	11	27	44	0	21	0	0
Bacteriology	0	12	10	12	7	4	0	0
Economics and Business Administration	0	66	125	122	4	108	3	0
Education*	0	0	3	2	23	3	14	0
English	0	23	42	70	9	59	3	0
General Physical Science	0	1	2	6	5	2	4	0
Geology and Geography	0	10	11	9	0	10	0	0
Government	0	10	43	27	5	22	0	0
History	0	21	54	47	17	36	6	0
Hotel Administration	0	6	7	11	0	7	0	0
Languages	0	7	11	18	5	16	1	0
Music	0	3	1	11	0	11	0	0
Occupational Therapy	0	23	21	23	0	23	0	0
Philosophy	0	0	0	0	0	0	0	0
Psychology	0	20	21	30	15	28	11	0
Sociology	0	18	29	30	1	25	0	0
Zoology	0	28	28	29	19	20	5	1
College of Technology								
Chemical Engineering	19	14	16	10	5	11	1	0
Chemistry	19	13	9	13	38	9	1	5
Civil Engineering	34	28	28	29	1	21	0	0
Electrical Engineering	63	36	42	42	8	42	2	0
Mathematics	9	15	13	19	5	14	2	0
Mechanical Engineering	36	36	46	44	1	42	0	0
Physics	11	6	9	9	11	7	4	0

* There were 11 additional Education majors working for degrees in Social Service and Extension.

Distribution of Courses Required for Graduation

Table 25 shows a listing of the credits in courses numbered 51-100 which were offered as part of the graduation requirements for a series of students in various major fields.

COMMENT. A survey of the number of students enrolled in courses numbered 1-50 compared to courses numbered 51-100 revealed a seeming anomaly in total enrollment. This led to a study of the number of credits in courses numbered 51-100 offered for graduation in 1958-59. Approximately 20 percent of the students listed in the commencement program were selected. Each student was assigned an arbitrary code number, and the data were obtained from the Registrar's Office. It is of considerable interest to note that the percentage range is from 0 percent to 37.5 percent. There is often considerable variation within a major and within a given college.

If the assumption is made that courses numbered 1-50 are freshman and sophomore level courses and courses numbered 51-100 are junior and senior level courses, a surprising number of students graduate from the University with few upper level credits. Does this indicate that much of the University operates as a four-year junior college? Or does it indicate a misnumbering of courses? The Committee recommends that the undergraduate major requirements be more clearly defined and that course selection become less permissive. The procedure used by some departments of expressing specific requirements of courses numbered above 50 should be followed more generally.

It is obvious that the course numbering system in the University is not consistent. Some departments, notably in the College of Technology, have adopted a 1-10, 11-20, 21-30, 41-40 system which is at variance with the 1-50, 51-100 system used by the rest of the University. The Committee recommends the general adoption of a numbering system which more clearly states the academic year level of a particular course. Regulations should be established concerning the number of courses of each type which would be acceptable for graduation.

Table 25. Distribution of Credits in Courses 51-100 Required for Graduation, 1958-59

Field of Degree	Code Number	Total Credits	Credits 51-100	Percent
College of Agriculture:				
Agricultural Education	1	144	31	21.4
	2	138	21	15.2
Agricultural Engineering	3	144	9	6.2
Agronomy	4	136	20	14.7
	5	137	22	16.0
Animal Science	6	153	11	7.1
	7	136	17	12.5
Biochemistry	8	138	31	22.3
Botany	9	136	34	25.0
Dairy Science	10	144	22	15.2
	11	141	17	12.1
Forestry	12	162	27	16.7
	13	128	21	16.4
	14	143	9	6.3
	15	142	18	12.6
	16	137	16	11.7
General Agriculture	17	136	9	6.6
	18	140	14	10.0
	19	139	5	3.6
Home Economics	20	138	20	14.5
	21	137	29	21.2
	22	136	15	11.0
	23	140	30	21.4
	24	136	33	24.3
Horticulture	25	136	28	20.6
Mechanized Agriculture	26	137	8	5.8
	27	138	6	4.4
Poultry Science	28	138	11	7.9
	29	138	17	12.3
Pre-veterinary	30	136	14	10.3
College of Liberal Arts:				
The Arts	31	132	11	8.3
	32	128	15	11.7
	33	129	10	7.7
	34	132	18	13.6
	35	129	21	16.2
	36	132	24	18.1
	37	128	12	9.4
	38	129	30	23.2
Art Education	39	140	39	27.8
	40	128	33	25.8
Occupational Therapy	41	157	16	10.2
	42	129	10	7.7
	43	128	10	7.7
	44	128	7	5.4
	45	135	7	5.2
	46	128	15	11.7
	47	129	13	10.1
Bacteriology	48	128	30	23.4
	49	128	31	24.2
	50	128	26	20.3
Medical Technology	51	129	41	31.7
	52	128	41	32.0
Economics and Business Administration				
Business	53	135	15	11.1
	54	129	33	25.5
	55	128	15	11.7
	56	130	24	18.4
	57	131	24	18.3
	58	129	26	20.1
	59	134	33	24.6
	60	131	30	22.9
	61	129	27	20.9
	62	138	27	19.5
	63	128	27	21.1
	64	130	27	20.8
	65	129	21	16.3
	66	128	24	18.7
	67	128	27	21.0
	68	130	27	20.7
	69	130	18	13.8
	70	129	30	23.2
Economics	71	129	21	16.3
	72	128	24	18.5
	73	130	21	16.1
	74	128	30	23.4
	75	131	27	20.6
	76	132	21	15.9
	77	127	13	10.3
	78	128	21	16.4
Secretarial Studies	79	128	8	6.2
	80	128	30	23.3
	81	131	27	20.6
	82	128	15	11.7
Education	83	140	12	8.6
	84	*128	30	23.3
English	85	130	32	24.6
	86	129	27	20.9
	87	130	42	32.3
	88	131	36	27.5
	89	129	36	27.9
	90	132	33	25.0
	91	128	45	35.1
	92	129	39	30.2
	93	128	46	35.7
	94	129	32	24.8
	95	128	48	37.5
	96	130	40	30.7
	97	128	30	23.4
	98	131	33	25.1
General Physical Science	99	168	3	1.8
	100	129	5	3.9
	101	132	0	0.0
Geology and Geography	102	128	17	13.3
	103	131	14	10.7
	104	143	20	13.9

Table 25. Continued.

Field of Degree	Code Number	Total Credits	Credits 51-100	Percent
Government	105	128	27	21.1
	106	128	24	18.7
	107	128	27	21.1
	108	129	42	32.5
	109	131	28	21.4
	110	128	12	9.4
History	111	128	15	11.7
	112	132	39	29.5
	113	128	24	18.7
	114	130	14	10.8
	115	128	39	30.5
	116	128	24	18.7
	117	128	18	14.1
	118	131	21	16.0
	119	129	45	34.8
	120	128	24	18.7
Hotel Administration	121	176	8	4.5
	122	129	14	10.8
	123	129	19	14.7
	124	134	11	8.2
	125	132	13	9.8
Languages	126	131	18	13.7
	127	135	27	20.0
	128	135	27	20.0
	129	131	15	11.4
	130	129	32	24.8
	131	129	18	13.9
	132	128	9	7.0
Music	133	128	16	12.5
	134	131	30	22.9
	135	128	7	5.5
Music Education	136	135	40	29.6
	137	174	43	24.6
	138	130	42	32.4
Physical Education Teacher Preparation	139	128	42	32.8
	140	143	23	16.1
	141	128	39	30.5
	142	129	33	25.6
	143	128	42	32.7
	144	128	45	35.1
	145	128	35	27.3
Psychology	146	128	30	23.4
	147	129	39	30.2
	148	128	30	23.4
	149	132	15	11.4
	150	129	33	25.6
	151	131	36	27.5
Sociology	152	128	27	21.1
	153	130	33	25.4
	154	128	24	18.7
	155	128	30	23.4
Social Service	156	132	36	27.3
	157	128	33	25.8
	159	128	44	34.4
	160	128	38	29.7
	161	129	24	18.6
Zoology	162	129	21	16.3
	163	128	11	8.6
	164	139	30	21.6
	165	135	20	14.8
Biology	166	130	18	13.8
	167	128	17	13.3
	168	131	15	11.4
	169	133	30	22.5
Nursing	170	137	13	9.5
Pre-Medical	171	129	32	24.8
	172	128	29	22.6
	173	128	21	16.4
College of Technology:				
Chemical Engineering	174	144	49	34.0
	175	149	49	32.8
	176	149	50	33.5
	177	145	48	33.1
Chemistry	178	149	51	34.2
	179	146	51	34.9
	180	133	45	33.8
	181	130	25	19.1
	182	130	30	23.0
Civil Engineering	183	145	3	0.2
	184	157	6	3.8
	185	146	0	0.0
	186	155	6	3.9
	187	146	3	2.1
	188	146	6	4.1
Electrical Engineering	189	146	9	6.2
	190	144	14	9.7
	191	151	20	13.2
	192	144	10	6.9
	193	147	13	8.8
	194	156	15	9.6
	195	190	13	6.8
	196	149	10	6.7
Mathematics	197	160	36	22.5
	198	146	23	15.7
	199	225	26	11.5
	200	132	12	9.1
	201	130	3	2.3
	202	132	6	4.5
Mechanical Engineering	203	150	18	12.0
	204	154	21	13.6
	205	147	20	13.6
	206	146	24	16.0
	207	145	21	14.5
	208	145	21	14.5
	209	144	24	16.7
	210	164	27	16.5
	211	144	18	12.5
Physics	212	144	50	34.7
	213	146	47	32.2
	214	146	53	36.3

Course Listings in the Catalogue

All courses listed in the University catalogue are tabulated in Table 26 for 1958-59 and in Table 29 for 1952-53. Summaries and percentage distributions are given in Tables 27, 28, 30, and 31. All courses[1] listed in the catalogue are included whether or not they were offered during a given year. Table 32 summarizes the percentage change from 1952-53 to 1958-59.

COMMENT. These tables suggest several intriguing questions for discussion. Why should there be so few upper level courses in Agricultural Engineering, Animal Science, Poultry Science, Hotel Administration, Civil Engineering? Should approximately 50 percent of the courses be graduate level in Agricultural Economics, Biochemistry, Dairy Science, Chemistry? Does the program of instruction in each department have adequate balance at all levels?

Table 32 indicates a considerable increase in upper level courses from 1952-53 to 1958-59, but a majority of students still take lower level courses. The general increase of courses from 1952-53 to 1958-59 of about 10 percent is primarily an increase in upper level and graduate courses at the expense of the lower levels.

The Committee recommends that course listings be reviewed very carefully in connection with an overall attempt to reduce the number of courses offered. It is common in some universities to set a limit to the number of courses listed in terms of the number required for a major, exclusive of service courses. This has been variously suggested as 2/1-1.5/1. The listing of a large number of courses which are offered only occasionally can well give a false picture to a prospective student who expects more than he can get. As will be seen later, this may be of more significance at the graduate level.

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[1] Includes all numbered and un-numbered offerings valued at the maximum possible credits.

Table 26. Course Listings in Catalogue, 1958-59

Department	1 - 50 Number of Courses	1 - 50 Number of Credits	51 - 100 Number of Courses	51 - 100 Number of Credits	Over 100 Number of Courses	Over 100 Number of Credits
College of Agriculture:						
Agricultural Economics	3	10	6	17	8	38
Agricultural Engineering	16	38	0	0	0	0
Agronomy	7	20	11	31	6	34
Animal Science	11	25	2	6	2	6
Biochemistry	4	12	5	23	8	30
Botany	6	22	10	34	9	47
Dairy Science	5	10	6	16	12	50
Entomology	3	8	7	21	4	Arranged
Forestry	21	85	7	33	17	60
Home Economics	16	52	33	98	7	47
Horticulture	7	19	15	36	10	17
Poultry Science	13	31	3	8	14	52
Non-specified	3	9	6	42	0	0
College of Liberal Arts:						
Arts	45	96	8	41	0	0
Bacteriology	5	19	7	14	8	37
Economics and Business Administration	44	120	21	63	9	30
Education	2	6	8	26	28	96
English	24	70	33	99	33	105
Geology and Geography	22	69	7	27	0	0
Government	10	30	11	33	14	54
History	18	54	11	33	10	36
Hotel Administration	12	16	0	0	0	0
Languages	42	122	31	93	30	90
Music	45	62	17	36	0	0
Philosophy	4	12	10	30	0	0
Psychology	7	21	11	33	15	54
Sociology	7	21	16	51	5	23
Zoology	8	30	14	53	12	56
Biology	3	9	7	49	0	0
Non-specified	2	6	6	62	0	0
College of Technology:						
Chemical Engineering	1	5	18	56	9	22
Chemistry	14	66	14	55	26	75
Civil Engineering	29	85	0	0	16	61
Electrical Engineering	26	72	11	37	16	62
Mathematics	31	100	20	67	22	69
Mechanical Engineering	45	109	15	30	7	31
Physics	19	68	11	27	21	63
General:						
Air Science	8	18	0	0	0	0
Military Science	8	18	0	0	0	0
Physical Education, Men	7	12	5	14	0	0
Physical Education, Women	19	24	14	48	0	0

Table 27. Summary of Course Listings in Catalogue, 1958-59

College	1-50 Number of Courses	1-50 Number of Credits	51-100 Number of Courses	51-100 Number of Credits	Over 100 Number of Courses	Over 100 Number of Credits	Total Number of Courses	Total Number of Credits
Agriculture	115	341	111	365	97	381	323	1087
Liberal Arts	300	763	218	743	164	581	682	2087
Technology	165	505	89	292	117	383	369	1160
General	42	72	19	62	0	0	61	134
Total	622	1681	435	1442	378	1345	1435	4468

Table 28. Percentage Distribution of Course Listings in Catalogue, 1958-59

College	1-50		51-100		Over 100		Total	
	Courses	Credits	Courses	Credits	Courses	Credits	Courses	Credits
Agriculture	8.0	7.6	7.7	8.2	6.7	8.5	22.4	24.3
Liberal Arts	20.9	17.1	15.3	16.6	11.4	13.0	47.6	46.7
Technology	11.5	11.3	6.1	6.1	8.2	8.6	25.8	26.0
General	2.9	1.6	1.3	1.4	0.0	0.0	4.2	3.0
Total	43.3	37.6	30.4	32.3	26.3	30.1	100.0	100.0

Table 29. Course Listings in Catalogue, 1952-53

Department	1 - 50		51 - 100		Over 100	
	Number of Courses	Number of Credits	Number of Courses	Number of Credits	Number of Courses	Number of Credits
College of Agriculture:						
Agricultural Economics	2	7	5	15	8	32
Agricultural Engineering	19	37	[illegible]	0	0	0
Agronomy	8	24	[illegible]	21	6	32
Animal Science	10	24	2	6	12	50
Biochemistry	4	14	5	23	6	28
Botany	6	22	7	29	11	52
Dairy Science	8	19	5	19	0	0
Entomology	2	6	7	15	4	Arranged
Forestry	27	93	4	22	0	0
Home Economics	26	77	17	54	0	0
Horticulture	9	24	14	33	10	34
Poultry Science	13	32	3	8	10	40
Non-specified	3	9	3	19	0	0
College of Liberal Arts:						
Arts	46	109	3	18	0	0
Bacteriology	5	18	5	6	8	37
Economics and Business Administration	47	119	19	57	9	33
Education	2	6	7	23	24	84
English	25	73	38	114	33	108
Geology and Geography	21	61	6	26	0	0
Government	10	30	13	41	6	24
History	16	48	15	45	8	30
Hotel Administration	10	13	0	0	0	0
Languages	40	120	30	90	16	48
Music	47	70	15	27	0	0
Philosophy	12	36	4	12	0	0
Psychology	7	21	13	39	16	54
Sociology	7	21	13	42	6	26
Zoology	7	25	15	57	11	47
Biology	2	8	4	26	0	0
Non-specified	2	6	4	38	0	0
College of Technology:						
Chemical Engineering	0	0	9	27	7	11
Chemistry	15	60	16	62	21	79
Civil Engineering	16	45	7	28	15	55
Building Construction	6	16	0	0	0	0
Electrical Engineering	21	56	8	29	16	64
Mathematics	28	81	8	24	16	48
Mechanical Engineering	28	71	11	20	7	31
Physics	6	22	15	51	15	51
General:						
Air Science	16	84	0	0	0	0
Military Science	14	66	0	0	0	0
Physical Education, Men	10	15	6	17	0	0
Physical Education, Women	19	25	12	36	0	0

Table 30. Summary of Course Listings in Catalogue, 1952-53

College	1-50 Number of Courses	1-50 Number of Credits	51-100 Number of Courses	51-100 Number of Credits	Over 100 Number of Courses	Over 100 Number of Credits	Total Number of Courses	Total Number of Credits
Agriculture	137	388	79	264	67	268	283	920
Liberal Arts	306	784	204	661	137	491	647	1936
Technology	120	351	74	241	97	339	291	931
General	59	190	18	53	0	0	77	243
Total	622	1713	375	1219	301	1098	1298	4030

Table 31. Percentage Distribution of Course Listings in Catalogue, 1952-53

College	1-50 Courses	1-50 Credits	51-100 Courses	51-100 Credits	Over 100 Courses	Over 100 Credits	Total Courses	Total Credits
Agriculture	10.6	9.7	6.1	6.5	5.2	6.6	21.9	22.8
Liberal Arts	23.6	19.4	15.7	16.5	10.5	12.2	49.8	48.1
Technology	9.2	8.7	5.7	6.0	7.5	8.4	22.4	23.1
General	4.5	4.7	1.4	1.3	0.0	0.0	5.9	6.0
Total	47.9	42.5	28.9	30.3	23.2	27.2	100.0	100.0

Table 32. Summary of Percentage Change in Course Listings, 1952-53 to 1958-59

College	1-50 Courses	1-50 Credits	51-100 Courses	51-100 Credits	Over 100 Courses	Over 100 Credits	Total Courses	Total Credits
Agriculture	—16	—12	41	38	45	42	14	3
Liberal Arts	— 2	— 3	7	12	20	18	5	8
Technology	38	44	20	21	21	13	27	24
General	—29	—62	5	17	0	0	—21	—45
Total	0	— 2	16	18	25	22	10	11

Courses Taught

All courses taught in the University are tabulated in Table 33 for 1958-59 and in Table 36 for 1952-53. Summaries and percentage distributions are given in Tables 34, 35, 37, and 38. These listings were prepared by reference to the grade sheets of the courses. Table 39 summarizes the percentage change in the courses taught from 1952-53 to 1958-59. Table 40 shows a summary of the courses actually taught as a percentage of the course listings for 1958-59. and Table 41 shows the corresponding data for 1952-53.

COMMENT. The general pattern of this section is roughly the same as that for course listings. The actual presentation of 1,034 courses during the year is an appreciable load. It seems advisable to question further expansion of programs. Some departments and colleges may already schedule more courses than the enrollment justifies. Each department should undertake a thorough study of its course offerings to eliminate non-essential or out-of-date courses. There should also be more inter-departmental and inter-college coordination.

The College of Technology shows the greatest percentage increase in course listings from 1952-53 to 1958-59. At the same time it shows the lowest percentage increase in courses actually taught. This is possibly related to the curriculum changes currently underway in the College of Technology. Tables 40 and 41 show a very similar pattern. The number of courses taught approaches the number listed in the catalogue at lower levels but not at higher and graduate levels. Are more courses listed at higher levels than are actually needed? Perhaps the variation is accounted for by the listing of courses which are given only in alternate years or when demand is sufficient. A survey of how often certain courses have been taught during the past five or ten years might be very enlightening.

Table 33. Courses Taught, 1958-59

Department	1 - 50		51 - 100		Over 100	
	Number of Courses	Number of Credits	Number of Courses	Number of Credits	Number of Courses	Number of Credits
College of Agriculture:						
Agricultural Economics	3	10	4	11	5	12
Agricultural Engineering*	14	32	6	42	0	0
Agronomy	5	16	7	17	4	11
Animal Science	12	25	2	6	2	6
Biochemistry	4	14	4	19	7	21
Botany	5	18	8	22	4	14
Dairy Science	5	10	6	16	2	6
Entomology	4	11	5	16	0	0
Forestry	16	51	6	21	2	4
Home Economics	15	46	23	65	2	6
Horticulture	5	10	10	22	5	11
Poultry Science	10	22	2	5	6	23
Non-specified	3	8	0	0	0	0
College of Liberal Arts:						
Arts	39	94	7	23	0	0
Bacteriology	5	19	7	22	7	21
Economics and Business Administration	32	82	15	45	7	24
Education	4	12	12	67	5	15
English	32	76	17	51	4	15
Geology and Geography	18	54	6	15	0	0
Government	10	30	10	30	16	54
History	17	51	9	27	7	24
Hotel Administration	10	14.5	0	0	0	0
Languages	28	82	13	39	4	12
Music	42	58.5	14	30	0	0
Philosophy	3	9	2	6	0	0
Psychology	7	21	11	33	16	46
Sociology	10	30	15	45	4	12
Zoology	10	38	12	38	7	29
Biology	3	9	3	24	2	8
Non-specified	2	8	4	18	0	0
College of Technology:						
Chemical Engineering	1	5	11	33	8	22
Chemistry	15	69	13	54	17	50
Civil Engineering	24	71	1	3	6	18
Electrical Engineering	23	59	8	25	7	17
Mathematics	25	81	8	24	6	18
Mechanical Engineering	30	69	10	20.5	2	5
Physics	16	56	8	24	10	24
General:						
Air Science	8	18	0	0	0	0
Military Science	8	18	0	0	0	0
Physical Education, Men	8	12.5	4	11	0	0
Physical Education, Women	15	21	11	33	0	0

*Includes Agricultural Education

Table 34. Summary of Courses Taught, 1958-59

College	1-50		51-100		Over 100		Total	
	Number of Courses	Number of Credits	Number of Courses	Number of Credits	Number of Courses	Number of Credits	Number of Courses	Number of Credits
Agriculture	101	273	83	262	39	114	223	649
Liberal Arts	272	688	157	513	79	260	508	1461
Technology	134	410	59	184	56	154	249	748
General	39	69	15	44	0	0	54	113
Total	546	1440	314	1003	174	528	1034	2971

Table 35. Percentage Distribution of Courses Taught, 1958-59

College	1-50		51-100		Over 100		Total	
	Courses	Credits	Courses	Credits	Courses	Credits	Courses	Credits
Agriculture	9.8	9.2	8.0	8.8	3.8	3.8	21.6	21.8
Liberal Arts	26.3	23.1	15.2	17.3	7.6	8.7	49.1	49.1
Technology	12.9	13.8	5.8	6.2	5.4	5.2	24.0	25.2
General	3.8	2.3	1.5	1.6	0.0	0.0	5.3	3.9
Total	52.8	48.4	30.4	33.9	16.8	17.7	100.0	100.0

Table 36. Courses Taught, 1952-53

Department	1 - 50		51 - 100		Over 100	
	Number of Courses	Number of Credits	Number of Courses	Number of Credits	Number of Courses	Number of Credits
College of Agriculture:						
Agricultural Economics	2	7	4	12	0	0
Agricultural Engineering	13	25	4	32	0	0
Agronomy	6	17	3	7	2	13
Animal Science	10	24	2	6	1	6
Biochemistry	4	14	5	23	3	12
Botany	5	18	6	19	7	22
Dairy Science	7	16	5	13	1	3
Entomology	2	6	6	19	0	0
Forestry	15	50	2	8	0	0
Home Economics	25	74	12	36	0	0
Horticulture	9	22	11	25	8	17
Poultry Science	8	19	2	3	11	25
Non-specified	3	5	0	0	0	0
College of Liberal Arts:						
Arts	35	91	3	6	0	0
Bacteriology	5	19	7	22	7	26
Economics and Business Administration	30	80	14	42	7	24
Education	4	12	8	35	9	24
English	26	76	22	60	4	15
Geology and Geography	18	54	4	5	0	0
Government	9	27	11	34	4	18
History	15	45	8	24	7	27
Hotel Administration	11	12.5	0	0	0	0
Languages	30	89	13	39	6	21
Music	42	55	10	19	0	0
Philosophy	6	18	3	9	0	0
Psychology	6	18	12	36	11	33
Sociology	7	21	14	58	4	18
Zoology	7	25	12	39	11	36
Biology	2	8	2	19	0	0
Non-specified	2	6	4	20	0	0
College of Technology:						
Chemical Engineering	0	0	10	32	5	11
Chemistry	14	58	15	58	15	65
Civil Engineering	17	43	7	28	1	3
Building Construction	9	24	0	0	0	0
Electrical Engineering	20	51	7	25	3	16
Mathematics	25	74	6	18	10	30
Mechanical Engineering	30	75	11	19	3	9
Physics	7	28	15	53	8	24
General:						
Air Science	16	42	0	0	0	0
Military Science	15	36	0	0	0	0
Physical Education, Men	7	12	5	14	0	0
Physical Education, Women	7	9	12	30	0	0

Table 37. Summary of Courses Taught, 1952-53

College	1-50 Number of Courses	1-50 Number of Credits	51-100 Number of Courses	51-100 Number of Credits	Over 100 Number of Courses	Over 100 Number of Credits	Total Number of Courses	Total Number of Credits
Agriculture	109	297	62	203	33	98	204	598
Liberal Arts	255	656	147	467	70	242	472	1365
Technology	122	353	71	233	45	158	238	744
General	45	99	17	44	0	0	62	143
Total	531	1405	297	947	148	498	976	2850

Table 38. Percentage Distribution of Courses Taught, 1952-53

College	1-50 Courses	1-50 Credits	51-100 Courses	51-100 Credits	Over 100 Courses	Over 100 Credits	Total Courses	Total Credits
Agriculture	11.2	10.4	6.3	7.1	3.4	3.5	20.9	21.0
Liberal Arts	26.1	23.0	15.1	16.4	7.2	8.5	48.4	47.9
Technology	12.5	12.4	7.3	8.2	4.6	5.5	24.4	26.1
General	4.6	3.5	1.7	1.5	0.0	0.0	6.3	5.0
Total	54.4	48.3	30.4	33.2	15.2	17.5	100.0	100.0

Table 39. Summary of Percentage Change in Courses Taught, 1952-53 to 1958-59

College	1-50 Courses	1-50 Credits	51-100 Courses	51-100 Credits	Over 100 Courses	Over 100 Credits	Total Courses	Total Credits
Agriculture	— 7	— 8	34	29	18	16	9	8
Liberal Arts	7	5	7	10	13	7	8	7
Technology	10	16	—17	—21	24	— 2	5	1
General	—13	—30	—12	0	0	0	—13	—21
Total	3	3	6	6	17	6	6	4

Table 40. Summary of Courses Taught as Percentage of Course Listings, 1958-59

College	1-50 Courses	1-50 Credits	51-100 Courses	51-100 Credits	Over 100 Courses	Over 100 Credits	Total Courses	Total Credits
Agriculture	88	80	75	72	40	30	69	60
Liberal Arts	91	90	72	69	48	45	74	70
Technology	81	81	66	63	48	40	68	64
General	93	96	79	71	0	0	89	84
Total	88	86	72	69	46	39	72	66

Table 41. Summary of Courses Taught as Percentage of Course Listings, 1952-53

College	1-50 Courses	1-50 Credits	51-100 Courses	51-100 Credits	Over 100 Courses	Over 100 Credits	Total Courses	Total Credits
Agriculture	79	76	78	77	49	36	72	65
Liberal Arts	83	84	72	71	51	49	73	70
Technology	102	101	96	97	46	47	82	80
General	76	52	94	83	0	0	80	59
Total	85	82	79	78	49	45	75	71

Course Enrollments

A complete breakdown of course enrollments for 1958-59 and 1952-53 is given in Tables 42-65 inclusive. These data are based upon the actual number of students receiving final grades in each course. The data for Semester I and Semester II of each year are presented separately. There is often a considerable change in the courses presented, and the class enrollment varies from one semester to another.

In this discussion the term class is not synonymous with course. The term class includes all sections of a given course and considers laboratory and lecture as separate classes. The enrollment figure is not the number of students registered in a particular course, but the number accommodated in all separate classes of a given course. A course which has 100 students meeting in lecture for three times a week and four laboratory classes of 25 students each would have a total enrollment of two hundred students in five classes.

COMMENT. Departments and colleges with a high percentage of lecture courses will generally have a higher ratio of students to faculty than those with many laboratory classes. The average enrollment per class at the undergraduate level is highest in the College of Liberal Arts. At the graduate level, enrollment is highest in the College of Technology. It is a custom in some institutions to set a minimum enrollment per class which must be met before that course can be taught. One set of suggested limits has been 15 for lower level courses, eight for upper level courses, and five for graduate level courses. If this were the case at the University of New Hampshire, only two departments in the College of Agriculture would have sufficient average enrollment per class for the entire year. Some departments in Liberal Arts and Technology would not be able to justify upper level courses, and only History, Chemistry, and Physics would justify graduate classes. This obviously is not a reasonable criterion, although certainly departments with very low average enrollments in lower level courses ought to look over their programs.

Only a few departments (History, Economics, Geology, Psychology, Sociology, and Chemistry) teach many moderately large classes (over 50 students). The two largest lecture classes are in Humanities 1 and Biology 1, each with approximately 200 students. Increase in class size is an area in which great saving is possible.

Total enrollment and enrollment per class in the upper level courses is appreciably less than in the lower level courses. Only 13.5 percent of the total undergraduate class enrollment is in the upper level courses. It was this observation that led us to study the graduation requirements presented in Table 25. In the lower level courses the lagrest number of classes is in the 11-20 enrollment range, and in the upper level courses is in the 1-10 range. At the graduate level almost all courses are in the 1-10 range. Thirteen of the 28 departments offering graduate work during Semester I, 1958-59, averaged less than two graduate students per class. There are certainly areas of graduate work where consolidation of departments should be considered.

It should be pointed out that there was a small increase in the average enrollment per class for undergraduate courses in the period 1952-53 to 1958-59, but a slight decrease at the graduate level.

Particular attention should be paid to class size in courses not required in a program. The number of such courses should be reduced where enrollment is low or courses should be transferred to an alternate-year or demand basis. Enrollment minima should be set for such classes. Limits should not be set on required courses for established programs. A re-study of course offerings by level of instruction might establish a better balance between lower and upper level requirements.

Table 42. Course Enrollments, Semester I, 1958-59
Courses 1 - 50

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	0	0	0	0	0	0	0	0.0
Agricultural Engineering	73	14	0	0	0	0	14	5.2
Agronomy	122	2	4	0	1	0	7	17.4
Animal Science	60	7	2	0	0	0	9	6.7
Biochemistry	112	1	0	2	0	1	4	28.0
Botany	192	1	3	1	1	1	7	27.4
Dairy Science	28	2	2	0	0	0	4	7.0
Entomology	16	2	0	0	0	0	2	8.0
Forestry	254	0	16	1	0	0	17	14.9
Home Economics	180	6	2	3	1	0	12	15.0
Horticulture	29	5	1	0	0	0	6	4.8
Poultry Science	29	6	1	0	0	0	7	4.1
Non-specified	76	1	0	0	2	0	3	25.3
College of Liberal Arts:								
Arts	889	5	22	8	5	0	40	22.2
Bacteriology	132	0	0	1	1	1	3	44.0
Economics and Business Administration	1324	7	5	15	13	5	45	29.4
Education	252	0	0	4	4	0	8	31.5
English	1876	0	15	46	8	3	72	26.0
Geology and Geography	816	2	6	11	2	5	26	31.4
Government	417	0	3	1	3	4	11	37.6
History	1248	1	3	0	3	15	22	56.7
Hotel Administration	73	1	2	0	1	0	4	18.2
Languages*	718	5	4	9	11	0	29	24.6
Music	588	13	6	5	4	2	30	19.6
Philosophy	103	0	1	0	2	0	3	34.3
Psychology	532	0	0	0	1	8	9	59.1
Sociology	687	1	0	1	3	8	13	52.8
Zoology	284	0	7	2	1	1	11	25.8
Biology	1121	0	1	1	16	3	21	53.4
Non-specified	474	0	0	1	5	2	8	59.2
College of Technology:								
Chemical Engineering	32	0	2	0	0	0	2	16.0
Chemistry	1341	2	6	9	13	8	38	35.3
Civil Engineering	495	0	8	16	0	0	24	20.6
Electrical Engineering	643	15	9	0	10	0	34	18.9
Mathematics	849	3	24	16	1	0	44	19.3
Mechanical Engineering	860	6	23	11	5	0	45	19.1
Physics	749	1	11	10	3	3	28	26.8
General:								
Air Science	1088	3	7	2	6	4	22	49.4
Military Science	842	1	8	0	8	2	19	44.3
Physical Education, Men	393	1	0	0	2	5	8	49.1
Physical Education, Women	1579	0	20	21	18	1	60	26.3

* Language labs, 381 students, not included.

Table 43. Course Enrollments, Semester II, 1958-59
Courses 1 - 50

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	73	0	3	0	1	0	4	18.2
Agricultural Engineering	71	8	2	0	0	0	10	7.1
Agronomy	42	4	1	0	0	0	5	8.4
Animal Science	102	3	4	1	0	0	8	12.7
Biochemistry	52	6	0	0	0	0	6	8.7
Botany	132	2	5	0	0	1	8	16.5
Dairy Science	13	3	0	0	0	0	3	4.3
Entomology	81	2	4	0	0	0	6	13.5
Forestry	193	4	11	0	0	0	15	12.9
Home Economics	130	6	6	0	0	0	12	10.8
Horticulture	30	0	2	0	0	0	2	15.0
Poultry Science	90	7	4	0	0	0	11	8.2
Non-specified	3	1	0	0	0	0	1	3.0
College of Liberal Arts:								
Arts	782	2	22	10	2	2	38	20.6
Bacteriology	100	2	0	2	1	0	5	20.0
Economics and Business Administration	1130	7	8	12	10	5	42	26.9
Education	307	0	0	5	5	0	10	30.7
English	2067	0	13	48	8	5	74	27.9
Geology and Geography	777	5	13	5	4	5	32	24.9
Government	470	1	0	0	0	6	7	67.1
History	1199	1	1	3	4	12	21	57.1
Hotel Administration	85	5	3	0	0	0	8	10.6
Languages*	546	6	10	11	3	0	30	18.2
Music	490	14	7	3	4	1	29	16.9
Philosophy	58	0	0	1	1	0	2	29.0
Psychology	501	0	0	1	2	6	9	55.7
Sociology	431	0	0	1	1	5	7	61.6
Zoology	414	4	9	2	2	1	18	23.0
Biology	1250	0	0	0	14	5	19	65.8
Non-specified	407	0	0	4	3	1	8	50.9
College of Technology:								
Chemical Engineering	0	0	0	0	0	0	0	0.0
Chemistry	1034	1	8	13	14	0	36	28.7
Civil Engineering	490	4	9	13	0	0	26	18.8
Electrical Engineering	516	21	6	2	6	0	35	14.7
Mathematics	705	5	21	12	2	0	40	17.6
Mechanical Engineering	655	10	20	10	2	0	42	15.6
Physics	1071	2	9	18	6	3	38	28.2
General:								
Air Science	994	3	7	2	7	3	22	45.2
Military Science	764	4	4	4	5	2	19	40.2
Physical Education, Men	566	1	2	0	5	5	13	43.5
Physical Education, Women	1582	3	23	22	17	0	65	24.3

* Language labs, 281 students, not included.

Table 44. Summary of Course Enrollments, Semester I, 1958-59
Courses 1 - 50

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	1171	47	31	7	5	2	92	12.7
Liberal Arts	11534	35	75	105	83	57	355	32.5
Technology	4969	27	83	62	32	11	215	23.1
General	3902	5	35	23	34	12	109	35.8
Total	21576	114	224	197	154	82	771	28.0

Table 45. Summary of Course Enrollments, Semester II, 1958-59
Courses 1 - 50

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	1012	46	42	1	1	1	91	11.1
Liberal Arts	11834	45	83	108	64	54	359	33.0
Technology	4471	43	73	68	30	3	217	20.6
General	3906	11	36	28	34	10	119	32.8
Total	20403	147	237	205	129	68	786	26.0

Table 46. Course Enrollments, Semester I, 1958-59
Courses 51 - 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	15	1	1	0	0	0	2	7.5
Agricultural Engineering	9	4	0	0	0	0	4	2.2
Agronomy	19	6	0	0	0	0	6	3.2
Animal Science	11	0	1	0	0	0	1	11.0
Biochemistry	12	4	0	0	0	0	4	3.0
Botany	70	5	0	2	0	0	7	10.0
Dairy Science	30	4	0	0	0	0	4	7.5
Entomology	7	3	0	0	0	0	3	2.3
Forestry	29	5	0	0	0	0	5	5.8
Home Economics	90	16	1	0	0	0	17	5.3
Horticulture	22	6	1	0	0	0	7	3.1
Poultry Science	8	2	0	0	0	0	2	4.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	64	5	0	0	1	0	6	10.7
Bacteriology	40	2	2	0	0	0	4	10.0
Economics and Business Administration	366	0	2	5	0	2	9	40.7
Education	129	2	4	1	1	0	8	16.1
English	320	1	1	2	5	1	10	32.0
Geology and Geography	51	4	3	0	0	0	7	7.3
Government	94	0	2	1	1	0	4	23.5
History	189	1	0	0	0	3	4	47.2
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	92	6	1	0	1	0	8	11.5
Music	40	7	1	0	0	0	8	5.0
Philosophy	0	0	0	0	0	0	0	0.0
Psychology	137	0	3	3	0	0	6	22.8
Sociology	377	2	2	1	1	3	9	41.9
Zoology	122	7	4	1	0	0	12	10.2
Biology	2	2	0	0	0	0	2	1.0
Non-specified	145	1	2	2	2	0	7	20.7
College of Technology:								
Chemical Engineering	85	3	5	0	0	0	8	10.6
Chemistry	127	2	7	0	0	0	9	14.1
Civil Engineering	0	0	0	0	0	0	0	0.0
Electrical Engineering	33	6	0	0	0	0	6	5.5
Mathematics	61	2	0	2	0	0	4	15.2
Mechanical Engineering	381	6	3	0	5	1	15	25.4
Physics	40	7	0	0	0	0	7	5.7
General:								
Air Science	0	0	0	0	0	0	0	0.0
Military Science	0	0	0	0	0	0	0	0.0
Physical Education, Men	14	2	0	0	0	0	2	7.0
Physical Education, Women	101	6	5	0	0	0	11	9.2

Table 47. Course Enrollments, Semester II, 1958-59
Courses 51 - 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	5	2	0	0	0	0	2	2.5
Agricultural Engineering	9	4	0	0	0	0	4	2.2
Agronomy	24	4	0	0	0	0	4	6.0
Animal Science	3	1	0	0	0	0	1	3.0
Biochemistry	41	2	2	0	0	0	4	10.2
Botany	87	3	4	1	0	0	8	10.9
Dairy Science	48	4	2	0	0	0	6	8.0
Entomology	25	5	0	0	0	0	5	5.0
Forestry	20	5	0	0	0	0	5	4.0
Home Economics	59	13	0	0	0	0	13	4.5
Horticulture	32	6	0	0	0	0	6	5.3
Poultry Science	1	1	0	0	0	0	1	1.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	77	1	0	1	1	0	3	25.7
Bacteriology	39	6	0	0	0	0	6	6.5
Economics and Business Administration	384	1	4	0	3	3	11	34.9
Education	301	4	6	0	4	1	15	20.1
English	305	2	1	2	3	2	10	30.5
Geology and Geography	31	4	1	0	0	0	5	6.2
Government	135	3	0	1	1	1	6	22.5
History	192	0	0	0	1	2	3	64.0
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	82	3	1	0	0	1	5	16.4
Music	56	5	2	0	0	0	7	8.0
Philosophy	29	1	0	1	0	0	2	14.5
Psychology	137	0	4	1	0	1	6	22.8
Sociology	153	2	2	2	0	1	7	21.8
Zoology	97	12	3	0	0	0	15	6.5
Biology	14	3	0	0	0	0	3	4.7
Non-specified	175	1	0	4	2	0	7	25.0
College of Technology:								
Chemical Engineering	48	1	3	0	0	0	4	12.0
Chemistry	124	10	3	0	0	0	13	9.5
Civil Engineering	18	0	1	0	0	0	1	18.0
Electrical Engineering	120	8	3	1	0	0	12	10.0
Mathematics	45	2	2	0	0	0	4	11.2
Mechanical Engineering	348	1	3	0	4	2	10	34.8
Physics	34	4	0	0	0	0	4	8.5
General:								
Air Science	0	0	0	0	0	0	0	0.0
Military Science	0	0	0	0	0	0	0	0.0
Physical Education, Men	23	1	1	0	0	0	2	11.5
Physical Education, Women	57	4	3	0	0	0	7	8.1

Table 48. Summary of Course Enrollments, Semester I, 1958-59
Courses 51 - 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	322	56	4	2	0	0	62	5.2
Liberal Arts	2168	40	27	16	12	9	104	20.8
Technology	727	26	15	2	5	1	49	14.8
General	115	8	5	0	0	0	13	8.8
Total	3332	130	51	20	17	10	228	14.6

Table 49. Summary of Course Enrollments, Semester II, 1958-59
Courses 51 - 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	354	50	8	1	0	0	59	6.0
Liberal Arts	2207	48	24	12	15	12	111	19.9
Technology	737	26	15	1	4	2	48	15.4
General	80	5	4	0	0	0	9	8.9
Total	3378	129	51	14	19	14	227	14.9

Table 50. Course Enrollments, Semester I, 1958-59
Courses Over 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	8	5	0	0	0	0	5	1.6
Agricultural Engineering	0	0	0	0	0	0	0	0.0
Agronomy	2	2	0	0	0	0	2	1.0
Animal Science	2	2	0	0	0	0	2	1.0
Biochemistry	14	5	0	0	0	0	5	2.8
Botany	2	2	0	0	0	0	2	1.0
Dairy Science	0	0	0	0	0	0	0	0.0
Entomology	0	0	0	0	0	0	0	0.0
Forestry	1	1	0	0	0	0	1	1.0
Home Economics	1	1	0	0	0	0	1	1.0
Horticulture	6	2	0	0	0	0	2	3.0
Poultry Science	2	2	0	0	0	0	2	1.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	0	0	0	0	0	0	0	0.0
Bacteriology	23	6	0	0	0	0	6	3.8
Economics and Business Administration	6	5	0	0	0	0	5	1.2
Education	10	2	0	0	0	0	2	5.0
English	5	3	0	0	0	0	3	1.7
Geology and Geography	0	0	0	0	0	0	0	0.0
Government	12	9	0	0	0	0	9	1.3
History	21	2	1	0	0	0	3	7.0
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	4	3	0	0	0	0	3	1.3
Music	0	0	0	0	0	0	0	0.0
Philosophy	0	0	0	0	0	0	0	0.0
Psychology	44	11	0	0	0	0	11	4.0
Sociology	2	2	0	0	0	0	2	1.0
Zoology	36	10	0	0	0	0	10	3.6
Biology	6	2	0	0	0	0	2	3.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Technology:								
Chemical Engineering	15	4	0	0	0	0	4	3.8
Chemistry	70	8	4	0	0	0	12	5.8
Civil Engineering	4	3	0	0	0	0	3	1.3
Electrical Engineering	15	5	0	0	0	0	5	3.0
Mathematics	11	3	0	0	0	0	3	3.6
Mechanical Engineering	0	0	0	0	0	0	0	0.0
Physics	31	6	0	0	0	0	6	5.2
General:								
Air Science	0							
Military Science	0							
Physical Education, Men	0							
Physical Education, Women	0							

Table 51. Course Enrollments, Semester II, 1958-59
Courses Over 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	1	1	0	0	0	0	1	1.0
Agricultural Engineering	0	0	0	0	0	0	0	0.0
Agronomy	2	2	0	0	0	0	2	1.0
Animal Science	2	2	0	0	0	0	2	1.0
Biochemistry	8	4	0	0	0	0	4	2.0
Botany	19	5	0	0	0	0	5	3.8
Dairy Science	4	2	0	0	0	0	2	2.0
Entomology	0	0	0	0	0	0	0	0.0
Forestry	4	1	0	0	0	0	1	4.0
Home Economics	1	1	0	0	0	0	1	1.0
Horticulture	9	3	0	0	0	0	3	3.0
Poultry Science	7	5	0	0	0	0	5	1.4
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	0	0	0	0	0	0	0	0.0
Bacteriology	14	5	0	0	0	0	5	2.8
Economics and Business Administration	17	12	0	0	0	0	12	1.4
Education	10	3	0	0	0	0	3	3.3
English	3	1	0	0	0	0	1	3.0
Geology and Geography	0	0	0	0	0	0	0	0.0
Government	8	7	0	0	0	0	7	1.1
History	30	3	1	0	0	0	4	7.5
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	3	2	0	0	0	0	2	1.5
Music	0	0	0	0	0	0	0	0.0
Philosophy	0	0	0	0	0	0	0	0.0
Psychology	46	12	0	0	0	0	12	3.8
Sociology	2	2	0	0	0	0	2	1.0
Zoology	15	8	0	0	0	0	8	1.9
Biology	6	2	0	0	0	0	2	3.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Technology:								
Chemical Engineering	11	4	0	0	0	0	4	2.8
Chemistry	79	7	4	0	0	0	11	7.2
Civil Engineering	4	3	0	0	0	0	3	1.3
Electrical Engineering	9	6	0	0	0	0	6	1.5
Mathematics	7	3	0	0	0	0	3	2.3
Mechanical Engineering	3	2	0	0	0	0	2	1.5
Physics	38	7	0	0	0	0	7	5.4
General:								
Air Science	0							
Military Science	0							
Physical Education, Men	0							
Physical Education, Women	0							

Table 52. Summary of Course Enrollments, Semester I, 1958-59
Courses Over 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	38	22	0	0	0	0	22	1.7
Liberal Arts	169	55	1	0	0	0	56	3.0
Technology	146	29	4	0	0	0	33	4.4
General	0	0	0	0	0	0	0	0.0
Total	353	106	5	0	0	0	111	3.2

Table 53. Summary of Course Enrollments, Semester II, 1958-59
Courses Over 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	57	26	0	0	0	0	26	2.2
Liberal Arts	154	57	1	0	0	0	58	2.7
Technology	151	32	4	0	0	0	36	4.2
General	0	0	0	0	0	0	0	0.0
Total	362	115	5	0	0	0	120	2.9

Table 54. Course Enrollments, Semester I, 1952-53
Courses 1 - 50

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	0	0	0	0	0	0	0	0.0
Agricultural Engineering	51	12	0	0	0	0	12	4.2
Agronomy	104	4	0	3	0	0	7	14.8
Animal Science	84	2	5	0	0	0	7	12.0
Biochemistry	120	0	3	0	0	1	4	30.0
Botany	156	0	6	0	0	1	7	22.3
Dairy Science	38	5	0	0	0	0	5	7.6
Entomology	16	2	0	0	0	0	2	8.0
Forestry	124	10	4	0	0	0	14	8.8
Home Economics	460	15	8	3	2	1	29	15.9
Horticulture	34	4	1	0	0	0	5	6.8
Poultry Science	25	5	0	0	0	0	5	5.0
Non-specified	84	1	0	0	0	1	2	42.0
College of Liberal Arts:								
Arts	612	2	16	6	5	0	29	21.1
Bacteriology	165	0	0	1	2	1	4	41.2
Economics and Business Administration	1324	1	12	9	19	2	43	30.8
Education	145	0	1	1	3	0	5	29.0
English	1277	4	16	33	4	1	58	22.0
Geology and Geography	922	3	4	12	4	6	29	31.8
Government	322	0	0	0	1	4	5	64.4
History	868	0	4	0	7	7	18	48.2
Hotel Administration	50	2	0	2	0	0	4	12.5
Languages	583	3	14	11	2	0	30	19.4
Music	703	10	9	6	3	4	32	21.9
Philosophy	73	1	1	0	0	1	3	24.3
Psychology	492	0	0	1	9	1	11	44.7
Sociology	390	0	0	2	4	3	9	43.3
Zoology	333	0	7	2	0	2	11	30.3
Biology	1653	0	0	0	28	2	30	55.1
Non-specified	314	0	1	1	3	1	6	52.3
College of Technology:								
Chemical Engineering	0	0	0	0	0	0	0	0.0
Chemistry	1057	3	6	4	5	11	29	36.4
Civil Engineering	193	4	9	1	0	0	14	13.8
Building Construction	27	3	0	0	0	0	3	9.0
Electrical Engineering	278	8	11	1	0	0	20	13.9
Mathematics	849	5	16	22	0	0	43	19.7
Mechanical Engineering	475	3	8	12	1	0	24	19.8
Physics	673	1	13	8	0	3	25	26.9
General:								
Air Science	750	0	3	2	5	8	18	41.7
Military Science	561	0	6	7	8	0	21	26.7
Physical Education, Men	481	4	1	0	10	0	15	32.1
Physical Education, Women	1204	0	50	18	0	0	68	17.7

Table 55. Course Enrollments, Semester II, 1952-53
Courses 1 - 50

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	68	0	2	1	0	0	3	22.7
Agricultural Engineering	91	7	3	0	0	0	10	9.1
Agronomy	94	0	4	2	0	0	6	15.7
Animal Science	149	3	3	2	1	0	9	16.5
Biochemistry	82	0	6	0	0	0	6	13.7
Botany	[illegible]	4	3	0	1	0	8	12.2
Dairy Science	[illegible]	3	1	2	0	0	6	14.2
Entomology	58	0	2	1	0	0	3	19.3
Forestry	149	8	7	0	0	0	15	9.9
Home Economics	378	7	9	5	0	1	22	17.2
Horticulture	123	5	4	2	0	0	11	11.2
Poultry Science	92	4	2	2	0	0	8	11.5
Non-specified	1	1	0	0	0	0	1	1.0
College of Liberal Arts:								
Arts	624	2	15	5	5	1	28	22.3
Bacteriology	114	3	3	2	0	0	8	14.2
Economics and Business Administration	1102	6	14	10	12	2	44	25.0
Education	149	0	2	2	2	0	6	24.8
English	1465	5	16	39	4	1	65	22.5
Geology and Geography	763	5	8	7	2	5	28	27.2
Government	444	1	0	0	1	5	7	63.4
History	800	0	4	0	8	6	18	44.4
Hotel Administration	140	1	5	2	0	0	8	17.5
Languages	463	3	20	6	0	0	29	15.9
Music	611	18	8	4	5	2	37	16.5
Philosophy	78	0	1	0	2	0	3	26.0
Psychology	495	0	1	0	4	5	10	49.5
Sociology	518	0	0	0	1	8	9	57.8
Zoology	329	6	2	1	2	2	13	25.3
Biology	1434	0	0	4	22	2	28	51.2
Non-specified	246	0	1	2	2	1	6	41.0
College of Technology:								
Chemical Engineering	0	0	0	0	0	0	0	0.0
Chemistry	805	0	7	3	8	5	23	35.0
Civil Engineering	253	2	11	4	0	0	17	14.9
Building Construction	28	5	0	0	0	0	5	5.6
Electrical Engineering	247	8	11	0	0	0	19	13.0
Mathematics	825	6	24	16	0	0	46	17.9
Mechanical Engineering	531	8	5	14	1	0	28	19.0
Physics	505	3	15	5	2	1	26	19.4
General:								
Air Science	691	0	3	3	6	6	18	38.4
Military Science	361	0	6	6	3	0	15	24.1
Physical Education, Men	475	2	2	0	10	0	14	33.9
Physical Education, Women	1172	0	61	12	0	0	73	16.0

Table 56. Summary of Course Enrollments, Semester I, 1952-53
Courses 1 - 50

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	1296	60	27	6	2	4	99	13.1
Liberal Arts	10226	26	85	87	94	35	327	31.3
Technology	3552	27	63	48	6	14	158	22.5
General	2996	4	60	27	23	8	122	24.6
Total	18070	117	235	168	125	61	706	25.6

Table 57. Summary of Course Enrollments, Semester II, 1952-53
Courses 1 - 50

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	1468	42	46	17	2	1	108	13.6
Liberal Arts	9775	50	100	84	73	40	347	28.2
Technology	3194	32	73	42	11	6	164	19.5
General	2699	2	72	21	19	6	120	22.5
Total	17136	126	291	164	115	53	739	23.2

Table 58. Course Enrollments, Semester I, 1952-53
Courses 51 - 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	2	1	0	0	0	0	1	2.0
Agricultural Engineering	7	3	0	0	0	0	3	2.3
Agronomy	23	5	0	0	0	0	5	4.6
Animal Science	7	1	0	0	0	0	1	7.0
Biochemistry	38	4	1	0	0	0	5	7.6
Botany	69	8	2	1	0	0	11	6.3
Dairy Science	14	2	0	0	0	0	2	7.0
Entomology	6	3	0	0	0	0	3	2.0
Forestry	12	4	0	0	0	0	4	3.0
Home Economics	45	8	0	0	0	0	8	5.6
Horticulture	43	7	0	0	0	0	7	6.1
Poultry Science	1	1	0	0	0	0	1	1.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	4	2	0	0	0	0	2	2.0
Bacteriology	61	2	2	1	0	0	5	12.2
Economics and Business Administration	276	1	4	3	2	1	11	25.0
Education	67	2	2	1	0	0	5	13.4
English	204	5	4	1	3	0	13	15.7
Geology and Geography	15	2	1	0	0	0	3	5.0
Government	131	0	1	2	2	0	5	26.2
History	137	0	1	2	0	1	4	34.2
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	52	7	1	0	0	0	8	6.5
Music	39	6	0	0	0	0	6	6.5
Philosophy	48	0	0	0	1	0	1	48.0
Psychology	147	3	4	1	1	0	9	16.3
Sociology	172	1	2	2	1	1	7	24.6
Zoology	143	7	4	0	1	0	12	11.9
Biology	4	3	0	0	0	0	3	1.3
Non-specified	62	1	0	2	0	0	3	20.3
College of Technology:								
Chemical Engineering	30	5	0	0	0	0	5	6.0
Chemistry	179	1	7	3	0	0	11	16.3
Civil Engineering	164	0	6	2	0	0	8	20.5
Building Construction	0	0	0	0	0	0	0	0.0
Electrical Engineering	30	2	2	0	0	0	4	7.5
Mathematics	24	2	1	0	0	0	3	8.0
Mechanical Engineering	153	5	1	2	0	1	9	17.0
Physics	67	10	0	0	0	0	10	6.7
General:								
Air Science	0	0	0	0	0	0	0	0.0
Military Science	0	0	0	0	0	0	0	0.0
Physical Education, Men	7	2	0	0	0	0	2	3.5
Physical Education, Women	184	0	9	1	0	0	10	18.4

Table 59. Course Enrollments, Semester II, 1952-53
Courses 51 - 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	7	3	0	0	0	0	3	2.3
Agricultural Engineering	19	2	1	0	0	0	3	6.3
Agronomy	0	0	0	0	0	0	0	0.0
Animal Science	5	1	0	0	0	0	1	5.0
Biochemistry	46	6	1	0	0	0	7	6.6
Botany	39	3	1	0	0	0	4	9.8
Dairy Science	44	4	2	0	0	0	6	7.3
Entomology	55	5	2	0	0	0	7	7.9
Forestry	0	0	0	0	0	0	0	0.0
Home Economics	41	6	2	0	0	0	8	5.1
Horticulture	50	7	1	0	0	0	8	6.2
Poultry Science	1	1	0	0	0	0	1	1.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	16	1	1	0	0	0	2	8.0
Bacteriology	18	2	0	0	0	0	2	9.0
Economics and Business Administration	286	3	3	2	3	1	12	23.8
Education	157	1	5	2	1	0	9	17.4
English	232	4	3	0	4	0	11	21.1
Geology and Geography	34	0	1	1	0	0	2	17.0
Government	102	1	2	3	0	0	6	17.0
History	140	0	1	1	1	1	4	35.0
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	38	3	2	0	0	0	5	7.6
Music	60	4	0	1	0	0	5	12.0
Philosophy	46	1	0	0	1	0	2	23.0
Psychology	92	3	1	1	1	0	6	15.3
Sociology	161	2	3	2	0	1	8	20.1
Zoology	112	6	2	2	0	0	10	11.2
Biology	0	0	0	0	0	0	0	0.0
Non-specified	67	1	0	0	2	0	3	22.3
College of Technology:								
Chemical Engineering	41	5	0	0	0	0	5	8.2
Chemistry	205	5	6	3	0	0	14	14.6
Civil Engineering	168	2	3	4	0	0	9	18.7
Building Construction	0	0	0	0	0	0	0	0.0
Electrical Engineering	62	8	2	0	0	0	10	6.2
Mathematics	20	3	0	0	0	0	3	6.7
Mechanical Engineering	188	3	2	6	0	0	11	17.1
Physics	66	12	0	0	0	0	12	5.5
General:								
Air Science	0	0	0	0	0	0	0	0.0
Military Science	0	0	0	0	0	0	0	0.0
Physical Education, Men	15	3	0	0	0	0	3	5.0
Physical Education, Women	165	0	9	1	0	0	10	16.5

Table 60. Summary of Course Enrollments, Semester I, 1952-53
Courses 51 - 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	267	47	3	1	0	0	51	5.2
Liberal Arts	1561	42	26	15	11	3	97	16.1
Technology	647	25	17	7	0	1	50	13.0
General	191	2	9	1	0	0	12	15.9
Total	2666	116	55	24	11	4	210	12.7

Table 61. Summary of Course Enrollments, Semester II, 1952-53
Courses 51 - 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	307	38	10	0	0	0	48	6.4
Liberal Arts	1561	32	24	15	13	3	87	17.9
Technology	750	38	13	13	0	0	64	11.7
General	180	3	9	1	0	0	13	13.8
Total	2798	111	56	29	13	3	212	13.2

Table 62. Course Enrollments, Semester I, 1952-53
Courses Over 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	0	0	0	0	0	0	0	0.0
Agricultural Engineering	0	0	0	0	0	0	0	0.0
Agronomy	0	0	0	0	0	0	0	0.0
Animal Science	0	0	0	0	0	0	0	0.0
Biochemistry	1	1	0	0	0	0	1	1.0
Botany	5	4	0	0	0	0	4	1.2
Dairy Science	0	0	0	0	0	0	0	0.0
Entomology	0	0	0	0	0	0	0	0.0
Forestry	0	0	0	0	0	0	0	0.0
Home Economics	0	0	0	0	0	0	0	0.0
Horticulture	16	4	0	0	0	0	4	4.0
Poultry Science	11	5	0	0	0	0	5	2.2
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	0	0	0	0	0	0	0	0.0
Bacteriology	18	6	0	0	0	0	6	3.0
Economics and Business Administration	13	5	0	0	0	0	5	2.6
Education	34	2	2	0	0	0	4	8.5
English	4	1	0	0	0	0	1	4.0
Geology and Geography	0	0	0	0	0	0	0	0.0
Government	5	2	0	0	0	0	2	2.5
History	11	4	0	0	0	0	4	2.8
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	7	4	0	0	0	0	4	1.8
Music	0	0	0	0	0	0	0	0.0
Philosophy	0	0	0	0	0	0	0	0.0
Psychology	38	3	1	0	0	0	4	9.5
Sociology	2	2	0	0	0	0	2	1.0
Zoology	23	11	0	0	0	0	11	2.1
Biology	0	0	0	0	0	0	0	0.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Technology:								
Chemical Engineering	2	2	0	0	0	0	2	1.0
Chemistry	51	7	1	0	0	0	8	6.4
Civil Engineering	0	0	0	0	0	0	0	0.0
Building Construction	0	0	0	0	0	0	0	0.0
Electrical Engineering	3	2	0	0	0	0	2	1.5
Mathematics	15	5	0	0	0	0	5	3.0
Mechanical Engineering	5	2	0	0	0	0	2	2.5
Physics	5	3	0	0	0	0	3	1.6
General:								
Air Science	0							
Military Science	0							
Physical Education, Men	0							
Physical Education, Women	0							

Table 63. Course Enrollments, Semester II, 1952-53
Courses Over 100

Department	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
College of Agriculture:								
Agricultural Economics	0	0	0	0	0	0	0	0.0
Agricultural Engineering	0	0	0	0	0	0	0	0.0
Agronomy	4	2	0	0	0	0	2	2.0
Animal Science	1	1	0	0	0	0	1	1.0
Biochemistry	2	2	0	0	0	0	2	1.0
Botany	24	8	0	0	0	0	8	3.0
Dairy Science	2	2	0	0	0	0	2	1.0
Entomology	0	0	0	0	0	0	0	0.0
Forestry	0	0	0	0	0	0	0	0.0
Home Economics	0	0	0	0	0	0	0	0.0
Horticulture	9	5	0	0	0	0	5	1.8
Poultry Science	15	8	0	0	0	0	8	1.9
Non-specified	0	0	0	0	0	0	0	0.0
College of Liberal Arts:								
Arts	0	0	0	0	0	0	0	0.0
Bacteriology	10	4	0	0	0	0	4	2.5
Economics and Business Administration	17	8	0	0	0	0	8	2.1
Education	36	4	1	0	0	0	5	7.2
English	11	3	0	0	0	0	3	3.7
Geology and Geography	0	0	0	0	0	0	0	0.0
Government	3	2	0	0	0	0	2	1.5
History	11	3	0	0	0	0	3	3.7
Hotel Administration	0	0	0	0	0	0	0	0.0
Languages	11	4	0	0	0	0	4	2.8
Music	0	0	0	0	0	0	0	0.0
Philosophy	0	0	0	0	0	0	0	0.0
Psychology	45	7	1	0	0	0	8	5.6
Sociology	6	5	0	0	0	0	5	1.2
Zoology	20	6	0	0	0	0	6	3.3
Biology	0	0	0	0	0	0	0	0.0
Non-specified	0	0	0	0	0	0	0	0.0
College of Technology:								
Chemical Engineering	5	3	0	0	0	0	3	1.7
Chemistry	44	7	0	0	0	0	7	6.3
Civil Engineering	1	1	0	0	0	0	1	1.0
Building Construction	0	0	0	0	0	0	0	0.0
Electrical Engineering	1	1	0	0	0	0	1	1.0
Mathematics	14	5	0	0	0	0	5	2.8
Mechanical Engineering	3	1	0	0	0	0	1	3.0
Physics	7	5	0	0	0	0	5	1.4
General:								
Air Science	0							
Military Science	0							
Physical Education, Men	0							
Physical Education, Women	0							

Table 64. Summary of Course Enrollments, Semester I, 1952-53
Courses Over 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	33	14	0	0	0	0	14	2.4
Liberal Arts	155	40	3	0	0	0	43	3.6
Technology	81	21	1	0	0	0	22	3.7
General	0	0	0	0	0	0	0	0.0
Total	269	75	4	0	0	0	79	3.4

Table 65. Summary of Course Enrollments, Semester II, 1952-53
Courses Over 100

College	Enrollment	Number of Classes Enrolling 1 - 10	11 - 20	21 - 30	31 - 50	Over 50	Total Number of Classes	Average Enrollment Per Class
Agriculture	57	28	0	0	0	0	28	2.0
Liberal Arts	170	46	2	0	0	0	48	3.5
Technology	75	23	0	0	0	0	23	3.3
General	0	0	0	0	0	0	0	0.0
Total	302	97	2	0	0	0	99	3.1

Type of Instruction

The number of classes, by type of instruction, for 1958-59 and 1952-53 are shown in Table 66 and Table 69. Summaries and percentage distributions are shown in Tables 67, 68, 70, and 71.

COMMENT. Classification as to type of instruction is sometimes difficult. Lecture and recitation have been assumed to be interchangeable, as have seminar and colloquium. The laboratory classification includes general workshop, band, etc. The special category includes those not otherwise classified, courses in which credit is given by examination, reading courses, etc. The classes listed for music are practice sessions. There appear to be no significant changes in the distribution of types of classes as compared to 1952-53. Whether the ratio of lecture to laboratory classes is high or low cannot be answered.

Table 66. Number of Classes by Type of Instruction, 1958-59

Department	Lecture	Laboratory	Seminar	Physical Education	Thesis	Special	Music
College of Agriculture:							
Agricultural Economics	5	1	0	0	2	6	0
Agricultural Engineering	11	17	0	0	0	4	0
Agronomy	8	10	2	0	2	4	0
Animal Science	11	8	1	0	0	3	0
Biochemistry	10	12	2	0	2	1	0
Botany	10	16	2	0	1	8	0
Dairy Science	9	8	0	0	0	2	0
Entomology	7	7	0	0	0	2	0
Forestry	21	19	1	0	0	3	0
Home Economics	24	23	2	0	0	7	0
Horticulture	12	6	2	0	0	6	0
Poultry Science	7	6	8	0	3	4	0
Non-specified	3	0	0	0	0	1	0
College of Liberal Arts:							
Arts	28	57	0	0	0	2	0
Bacteriology	10	9	3	0	4	3	0
Economics and Business Administration	92	7	3	0	10	12	0
Education	35	4	0	0	0	7	0
English	159	4	1	0	0	6	0
Geology and Geography	30	32	2	0	0	6	0
Government	25	0	0	0	2	17	0
History	48	0	0	0	1	8	0
Hotel Administration	10	2	0	0	0	0	0
Languages	69	6*	0	0	0	2	0
Music	28	20	0	0	0	0	26
Philosophy	7	0	0	0	0	0	0
Psychology	31	0	3	0	8	11	0
Sociology	34	0	0	0	2	4	0
Zoology	24	28	3	0	3	16	0
Biology	13	36	0	0	0	0	0
Non-specified	18	0	6	0	0	6	0
College of Technology:							
Chemical Engineering	14	6	0	0	2	0	0
Chemistry	55	48	4	0	10	2	0
Civil Engineering	31	21	0	0	1	4	0
Electrical Engineering	26	50	1	0	3	18	0
Mathematics	98	0	0	0	0	0	0
Mechanical Engineering	34	75	3	0	2	0	0
Physics	48	32	3	0	1	6	0
General:							
Air Science	40	0	0	0	0	4	0
Military Science	34	0	0	0	0	4	0
Physical Education, Men	8	0	0	16	0	1	0
Physical Education, Women	15	43	0	85	0	0	0

* Scheduled. Rest of language laboratories unscheduled.

Table 67. Summary of Classes by Type of Instruction, 1958-59

College	Lecture	Laboratory	Seminar	Physical Education	Thesis	Special	Music	Total
Agriculture	138	133	20	0	10	51	0	352
Liberal Arts	661	205	21	0	30	100	26	1043
Technology	306	232	11	0	19	30	0	598
General	97	43	0	101	0	9	0	250
Total	1202	613	52	101	59	190	26	2243

Table 68. Percentage Distribution of Classes by Type of Instruction, 1958-59

College	Lecture	Laboratory	Seminar	Physical Education	Thesis	Special	Music	Total
Agriculture	6.1	5.9	.9	0.0	.4	2.3	0.0	15.6
Liberal Arts	[illegible]	9.1	.9	0.0	1.4	4.5	1.2	46.5
Technology	13.6	10.4	.5	0.0	.9	1.3	0.0	26.7
General	4.3	1.9	0.0	4.5	0.0	.5	0.0	11.2
Total	53.4	27.3	2.3	4.5	2.7	8.6	1.2	100.0

Table 69. Number of Classes by Type of Instruction, 1952-53

Department	Lecture	Laboratory	Seminar	Physical Education	Thesis	Special	Music
College of Agriculture:							
Agricultural Economics	5	1	0	0	0	2	0
Agricultural Engineering	10	15	2	0	0	1	0
Agronomy	7	10	1	0	1	1	0
Animal Science	9	8	1	0	1	0	0
Biochemistry	9	13	0	0	2	1	0
Botany	11	18	0	0	2	10	0
Dairy Science	9	11	1	0	0	0	0
Entomology	6	7	0	0	0	2	0
Forestry	17	16	0	0	0	0	0
Home Economics	26	34	2	0	0	5	0
Horticulture	17	14	2	0	2	5	0
Poultry Science	9	6	4	0	2	7	0
Non-specified	2	0	0	0	0	1	0
College of Liberal Arts:							
Arts	18	42	0	0	0	1	0
Bacteriology	9	12	4	0	2	2	0
Economics and Business Administration	85	27	[illegible]	0	1	9	0
Education	17	3	0	0	0	4	0
English	144	2	2	0	1	2	0
Geography and Geology	29	28	0	0	0	5	0
Government	21	0	2	0	2	3	0
History	48	0	0	0	1	1	0
Hotel Administration	9	1	0	0	0	2	0
Languages	72	0	0	0	2	6	0
Music	26	24	0	0	0	1	29
Philosophy	8	0	1	0	0	0	0
Psychology	36	3	3	0	1	5	0
Sociology	30	0	0	0	2	8	0
Zoology	21	30	3	0	4	5	0
Biology	32	27	0	0	0	2	0
Non-specified	14	0	2	0	0	2	0
College of Technology:							
Chemical Engineering	10	2	0	0	1	2	0
Chemistry	45	38	2	0	6	1	0
Civil Engineering	24	21	0	0	0	4	0
Building Construction							
Electrical Engineering	22	28	1	0	1	4	0
Mathematics	105	0	0	0	0	0	0
Mechanical Engineering	27	43	0	0	1	4	0
Physics	50	28	1	0	1	1	0
General:							
Air Science	36	[illegible]	0	0	0	0	0
Military Science	36	0	0	0	0	0	0
Physical Education, Men	8	4	0	20	0	2	0
Physical Education, Women	12	46	0	102	0	1	0

Table 70. Summary of Classes by Type of Instruction, 1952-53

College	Lecture	Laboratory	Seminar	Physical Education	Thesis	Special	Music	Total
Agriculture	137	153	13	0	10	35	0	348
Liberal Arts	619	199	18	0	16	58	29	939
Technology	283	160	4	0	10	16	0	473
General	92	50	0	122	0	3	0	267
Total	1131	562	35	122	36	112	29	2027

Table 71. Percentage Distribution of Classes by Type of Instruction, 1952-53

College	Lecture	Laboratory	Seminar	Physical Education	Thesis	Special	Music	Total
Agriculture	6.7	7.6	.6	0.0	.5	1.7	0.0	17.1
Liberal Arts	30.6	9.8	.9	0.0	.8	2.9	1.4	46.4
Technology	14.0	7.9	.2	0.0	.5	.8	0.0	23.3
General	4.5	2.5	0.0	6.0	0.0	.1	0.0	13.2
Total	55.8	27.8	1.7	6.0	1.8	5.5	1.4	100.0

Teaching as a Function of Faculty Rank

The number of classes taught by the different faculty ranks in each of the three groupings of course levels is shown in Tables 72, 75, and 78, for 1958-59 only. The data are summarized in Tables 73, 74, 76, 77, 79, and 80.

COMMENT. The opinion has sometimes been expressed that teaching in lower level courses is generally relegated to inexperienced teachers and graduate assistants. Full professors are reputed to reserve to themselves the upper level and graduate courses. As will be seen by reference to these tables the canard hardly seems justified.

Table 72. Number of Classes by Faculty Rank, 1958-59
Courses 1-50

Department	Professor	Associate	Assistant	Instructor	Other
College of Agriculture:					
Agricultural Economics	1	3	0	0	0
Agricultural Engineering	0	24	0	0	0
Agronomy	0	12	0	0	0
Animal Science	8	0	7	2	0
Biochemistry	4	0	6	0	0
Botany	6	5	4	0	0
Dairy Science	4	3	0	0	0
Entomology	7	0	1	0	0
Forestry	19	4	9	0	0
Home Economics	1	8	15	0	0
Horticulture	1	0	7	0	0
Poultry Science	3	5	0	2	0
Non-specified	2	0	0	0	2
College of Liberal Arts:					
Arts	4	15	25	33	1
Bacteriology	5	2	1	0	0
Economics and Business Administration	26	17	24	20	0
Education	2	6	3	7	0
English	23	22	22	71	8
Geology and Geography	17	0	36	0	5
Government	5	6	3	4	0
History	0	16	13	14	0
Hotel Administration	12	0	0	0	0
Languages	10	22	13	8	6
Music	9	3	18	29	0
Philosophy	0	5	0	0	0
Psychology	4	4	10	0	0
Sociology	4	12	4	0	0
Zoology	7	5	12	6	0
Biology	12	6	8	14	0
Non-specified	2	10	4	0	0
College of Technology:					
Chemical Engineering	2	0	0	0	0
Chemistry	18	0	15	8	33
Civil Engineering	33	7	0	10	0
Electrical Engineering	14	10	7	33	5
Mathematics	19	7	32	7	19
Mechanical Engineering	6	15	38	28	0
Physics	4	20	13	15	14
General:					
Air Science	0	0	8	32	4
Military Science	0	0	14	20	4
Physical Education, Men	2	8	11	0	0
Physical Education, Women	3	29	12	76	8

Table 73. Summary of Classes by Faculty Rank, 1958-59
Courses 1-50

College	Professor	Associate	Assistant	Instructor	Other	Total
Agriculture	56	64	49	4	2	175
Liberal Arts	142	151	196	206	20	715
Technology	96	59	105	101	71	432
General	5	37	45	128	16	231
Total	299	311	395	439	109	1553

Table 74. Percentage Distribution of Classes by Faculty Rank, 1958-59
Courses 1-50

College	Professor	Associate	Assistant	Instructor	Other	Total
Agriculture	3.6	4.1	3.2	.3	.1	11.3
Liberal Arts	9.2	9.7	12.6	13.2	1.3	46.0
Technology	6.2	3.8	6.8	6.5	4.6	27.8
General	.3	2.4	2.0	8.2	1.0	14.9
Total	19.3	20.0	25.5	28.2	7.0	100.0

Table 75. Number of Classes by Faculty Rank, 1958-59
Courses 51-100

Department	Professor	Associate	Assistant	Instructor	Other
College of Agriculture:					
Agricultural Economics	3	1	0	0	0
Agricultural Engineering	6	2	0	0	0
Agronomy	0	10	0	0	0
Animal Science	6	0	1	0	0
Biochemistry	8	0	0	0	0
Botany	7	6	2	0	0
Dairy Science	5	5	0	0	0
Entomology	8	0	0	0	0
Forestry	6	2	2	0	0
Home Economics	5	17	8	0	0
Horticulture	3	8	2	0	0
Poultry Science	2	1	0	0	0
Non-specified	0	0	0	0	0
College of Liberal Arts:					
Arts	5	2	2	0	0
Bacteriology	4	4	2	0	0
Economics and Business Administration	15	3	1	0	0
Education	4	4	14	0	0
English	8	10	2	1	0
Geology and Geography	5	0	7	0	0
Government	6	2	1	1	0
History	3	0	4	0	0
Hotel Administration	0	0	0	0	0
Languages	6	5	1	1	0
Music	7	1	4	3	0
Philosophy	0	2	0	0	0
Psychology	8	2	2	0	0
Sociology	1	5	10	0	0
Zoology	6	9	6	6	0
Biology	1	3	1	0	0
Non-specified	0	8	2	3	0
College of Technology:					
Chemical Engineering	10	0	2	0	0
Chemistry	8	3	11	0	0
Civil Engineering	1	0	0	0	0
Electrical Engineering	3	9	2	3	0
Mathematics	1	1	6	2	1
Mechanical Engineering	7	0	8	3	4
Physics	0	3	4	3	0
General:					
Air Science	0	0	0	0	0
Military Science	0	0	0	0	0
Physical Education, Men	1	1	2	0	0
Physical Education, Women	2	3	4	9	0

Table 76. Summary of Classes by Faculty Rank, 1958-59
Courses 51-100

College	Professor	Associate	Assistant	Instructor	Other	Total
Agriculture	59	52	15	0	0	126
Liberal Arts	79	60	59	15	0	213
Technology	30	16	33	11	5	95
General	3	4	6	9	0	22
Total	171	132	113	35	5	456

Table 77. Percentage Distribution of Classes by Faculty Rank, 1958-59
Courses 51-100

College	Professor	Associate	Assistant	Instructor	Other	Total
Agriculture	12.9	11.4	3.3	0.0	0.0	27.6
Liberal Arts	17.3	13.2	12.9	3.3	0.0	46.7
Technology	6.6	3.6	7.1	2.4	1.1	20.8
General	.7	.9	1.3	2.0	0.0	4.9
Total	37.5	29.0	24.7	7.7	1.1	100.0

Table 78. Number of Classes by Faculty Rank, 1958-59
Courses Over 100

Department	Professor	Associate	Assistant	Instructor	Other
College of Agriculture:					
Agricultural Economics	2	4	0	0	0
Agricultural Engineering	0	0	0	0	0
Agronomy	0	4	0	0	0
Animal Science	2	0	2	0	0
Biochemistry	8	0	1	0	0
Botany	4	2	1	0	0
Dairy Science	2	0	0	0	0
Entomology	0	0	0	0	0
Forestry	1	1	0	0	0
Home Economics	2	0	0	0	0
Horticulture	1	3	1	0	0
Poultry Science	3	0	0	0	0
Non-specified	0	0	0	0	0
College of Liberal Arts:					
Arts	0	0	0	0	0
Bacteriology	4	5	2	0	0
Economics and Business Administration	13	2	2	0	0
Education	3	0	1	1	0
English	1	3	0	0	0
Geology and Geography	0	0	0	0	0
Government	7	4	3	2	0
History	3	0	4	0	0
Hotel Administration	0	0	0	0	0
Languages	2	3	0	0	0
Music	0	0	0	0	0
Philosophy	0	0	0	0	0
Psychology	9	5	9	0	0
Sociology	1	2	1	0	0
Zoology	0	10	6	2	0
Biology	0	3	0	0	0
Non-specified	0	0	0	0	0
College of Technology:					
Chemical Engineering	8	0	0	0	0
Chemistry	11	2	10	0	0
Civil Engineering	4	2	0	0	0
Electrical Engineering	4	6	0	1	0
Mathematics	0	0	6	0	0
Mechanical Engineering	1	1	0	0	0
Physics	2	6	5	0	0
General:					
Air Science	0	0	0	0	0
Military Science	0	0	0	0	0
Physical Education, Men	0	0	0	0	0
Physical Education, Women	0	0	0	0	0

Table 79. Summary of Classes by Faculty Rank, 1958-59
Courses Over 100

College	Professor	Associate	Assistant	Instructor	Other	Total
Agriculture	25	14	5	0	0	44
Liberal Arts	43	37	28	5	0	113
Technology	30	17	21	1	0	69
General	0	0	0	0	0	0
Total	98	68	54	6	0	226

Table 80. Percentage Distribution of Classes by Faculty Rank, 1958-59
Courses Over 100

College	Professor	Associate	Assistant	Instructor	Other	Total
Agriculture	11.1	6.2	2.2	1.0	0.0	19.5
Liberal Arts	19.0	16.4	12.4	2.2	0.0	50.0
Technology	13.3	7.5	9.3	.4	0.0	30.5
General	0.0	0.0	0.0	0.0	0.0	0.0
Total	43.4	30.1	23.9	2.6	0.0	100.0

Productivity Index

Tables 81 and 83 present productivity index calculations for each department for 1958-59 and 1952-53. The data are summarized in Tables 82 and 84. The percentage change for each department during the interval 1952-53 to 1958-59 is shown in Table 85 and summarized in 86. Since these data are of such general significance the figures are broken down into percentage distribution for each college and for the University as a whole. This breakdown is given in Tables 87, 88, 89, and 90 and summarized in Tables 91 and 92.

In this tabulation the number of courses taught and not the number of classes is used. The number of students is the actual enrollment in the course. The number of student credits is calculated by multiplying the number of students in a given course by the number of credits for that course and summing these individual calculations for the department as a whole for both semesters. The number of full-time equivalent faculty was determined from data obtained from the President's Office and doubled to obtain the figure for both semesters combined. These figures take into account fractional assignments of time to teaching, research, etc. A graduate assistant was assigned a value of 0.4 faculty equivalent. The productivity index is calculated by dividing the total number of student credits for both semesters by the number of full-time equivalent faculty for both semesters.

COMMENT. Various criteria have been suggested for the evaluation of a department's effectiveness. One parameter which has been used to evaluate the teaching program of a department is the so-called productivity index. In making such calculations it is customary to include all teaching activities of the department, both undergraduate and graduate. There are no generally accepted norms, but it is possible to compare productivity index values with those obtained at other universities. In the *Analysis of Instructional Programs, Fall, 1958*, of the University of Nevada, the following values of productivity index have been suggested:

240–250	For departments and colleges with heavy lower division enrollment and many lecture type courses.
200	For departments and colleges with a high percentage of laboratory, such as Engineering, and for colleges with a high percentage of upper division and graduate courses, such as Education.
125	For departments and colleges with many laboratory courses, a low natural enrollment, and many upper division courses, such as Agriculture.

In general, the productivity index at the University of New Hampshire follows the pattern above. There are, however, some marked variations which may or may not be significant. Productivity index values which are noticeably higher than those of similar departments may indicate the presence of popular courses of high enrollment which may not be of high professional calibre. Values of productivity index which are lower than those of similar departments may indicate inefficient operation, or an enrollment so small as to suggest questioning the necessity of a program. These data may well suggest where departments within a college could be combined to definite advantage, and may even suggest movement of a department to a different college. The question may also be raised whether departments schedule more courses than their enrollment justifies. There should be a rough comparability between the percentage of classes scheduled and the percentage of student credit enrollments. Comparison of Table 36 and Table 91 shows that the College of Agriculture teaches 22.0 percent of the courses but handles only 6.6 percent of the student credits. The College of Liberal Arts teaches 48.1 percent of the courses but handles 61.3 percent of the student credits. The College of Technology teaches 24.5 percent of the courses and handles 22.8 percent of the student credits.

The productivity-index range in academic departments varies from 48 to 480. As expected, the high values are in those departments whose teaching is predominantly of the lecture type and which utilize large classes. It is apparent that average class size can generally be increased. Whether this is practical or not for a given program or department is not for us to say.

The percentage change in productivity index from 1952-53 to 1958-59 for each department is suggestive of many things. It must again be emphasized that it is suggestive and not indicative. In some cases an increase in the number of courses is accompanied by an increase in the number of student credits. In other cases an increase in the number of courses is accompanied by a decrease in students and student credits. In still other cases, a decrease in the number of courses is accompanied by an increase in the number of students and student credits. When these changes are accompanied by marked increases or decreases in the number of faculty-equivalents, they present an intriguing field for speculation.

The percentage distribution data are self-explanatory.

Table 81. Productivity Index (Student Credits per Faculty Equivalent) * 1958-59

Department	Number of Courses	Number of Credits	Number of Students	Number of Student Credits	Number of Full-time Equivalent Faculty	Productivity Index
College of Agriculture:						
Agricultural Economics	12	33	88	288	2.4	119
Agricultural Engineering	20	74	119	294	2.0	147
Agronomy	16	44	187	623	3.6	173
Animal Science	16	37	140	344	5.0	69
Biochemistry	15	54	190	859	6.0	143
Botany	17	54	386	1352	7.6	178
Dairy Science	13	32	75	191	4.0	48
Entomology	9	27	72	208	2.2	94
Forestry	24	76	266	824	6.0	137
Home Economics	40	117	318	900	11.0	82
Horticulture	20	43	97	213	4.4	48
Poultry Science	18	50	98	239	5.0	48
Non-specified	3	8	79	104	—	—
College of Liberal Arts:						
Arts	46	117	1681	4065	21.8	186
Bacteriology	19	62	263	962	6.2	155
Economics and Business Administration	54	151	3098	9154	24.0	381
Education	21	94	920	3169	12.4	256
English	53	142	4186	12392	49.0	253
Geology and Geography	24	69	1006	3425	12.0	285
Government	36	114	1132	3420	8.7	393
History	33	102	2876	8637	18.0	480
Hotel Administration	10	14	158	287	2.0	144
Languages	45	133	1367	3999	18.0	222
Music	56	89	1155	1626	20.0	81
Philosophy	5	15	190	570	2.0	285
Psychology	34	100	1395	4091	10.2	401
Sociology	29	87	1640	4965	11.0	451
Zoology	29	105	588	2148	25.0	235
Biology	8	41	1225	3739	—	—
Non-specified	6	26	1088	3270	—	—
College of Technology:						
Chemical Engineering	20	60	181	579	5.0	116
Chemistry	45	174	1461	5963	38.2	156
Civil Engineering	31	92	824	2684	12.0	224
Electrical Engineering	38	101	738	2400	19.6	122
Mathematics	39	123	1678	5970	30.0	199
Mechanical Engineering	42	94	2004	4393	25.0	176
Physics	34	104	1427	6540	21.4	306
General:						
Air Science	8	18	1043	2423	14.0	173
Military Science	8	18	801	1543	13.0	119
Physical Education, Men	12	23	996	734	18.0	41
Physical Education, Women	26	54	3262	3568	18.0	198

* Both semesters combined.

Table 82. Summary of Productivity Index, 1958-59

College	Number of Courses	Number of Credits	Number of Students	Number of Student Credits	Number of Faculty Equivalents	Average Productivity Index
Agriculture	223	649	2115	6439	59.2	109
Liberal Arts	508	1461	23968	69919	240.3	291
Technology	249	748	8313	28534	151.2	189
General	54	113	6102	8268	63.0	157
Total	1034	2971	40498	113160	513.7	223

Table 83. Productivity Index (Student Credits per Faculty Equivalent), 1952-53

Department	Number of Courses	Number of Credits	Number of Students	Number of Student Credits	Number of Full-time Equivalent Faculty	Productivity Index
College of Agriculture:						
Agricultural Economics	6	19	69	227	1.8	126
Agricultural Engineering	17	57	110	259	2.6	100
Agronomy	11	37	117	377	3.4	111
Animal Science	13	36	166	402	1.8	223
Biochemistry	12	49	151	664	5.6	119
Botany	18	59	206	689	7.8	88
Dairy Science	13	32	108	268	3.6	74
Entomology	8	25	71	208	1.6	130
Forestry	17	58	149	510	4.8	106
Home Economics	37	110	615	1814	11.6	156
Horticulture	28	64	177	408	4.4	93
Poultry Science	21	47	90	220	4.0	55
Non-specified	3	5	85	92	—	—
College of Liberal Arts:						
Arts	38	97	1127	2903	15.8	184
Bacteriology	19	67	236	846	4.8	176
Economics and Business Administration	51	146	2533	7731	23.2	333
Education	21	71	556	1724	8.4	205
English	52	151	3162	8816	42.0	210
Geology and Geography	22	59	1146	3464	12.0	289
Government	24	79	1007	3029	6.5	466
History	30	96	1926	5796	14.0	414
Hotel Administration	11	12	167	204	2.0	102
Languages	49	149	1154	3428	16.8	204
Music	52	74	1413	1501	18.0	83
Philosophy	9	27	245	735	2.0	368
Psychology	29	89	1275	3825	8.6	445
Sociology	25	97	1249	3826	8.4	455
Zoology	30	100	554	1990	21.6	284
Biology	4	27	1033	4184	—	—
Non-specified	6	26	688	2072	—	—
College of Technology:						
Chemical Engineering	15	43	78	225	3.4	66
Chemistry	44	181	1290	5074	29.8	170
Civil Engineering	25	74	466	1422	11.2	138
Building Construction	9	24	45	120	—	—
Electrical Engineering	30	92	422	1165	12.0	97
Mathematics	41	122	1760	5224	26.0	201
Mechanical Engineering	44	103	1355	3530	18.0	196
Physics	30	105	882	4119	18.6	221
General:						
Air Science	16	42	1441	2857	12.0	238
Military Science	15	36	922	1988	15.0	132
Physical Education, Men	12	26	945	599	18.0	33
Physical Education, Women	19	39	2582	3003	18.6	161

Table 84. Summary of Productivity Index, 1952-53

College	Number of Courses	Number of Credits	Number of Students	Number of Student Credits	Number of Faculty Equivalents	Average Productivity Index
Agriculture	204	598	2114	6158	53.0	116
Liberal Arts	472	1365	19471	56074	204.1	275
Technology	238	744	5298	20879	119.0	175
General	62	143	5890	8447	63.6	133
Total	976	2850	33773	91533	439.7	208

Table 85. Percentage Change in Productivity Index, 1952-53 to 1958-59

Department	Courses	Credits	Students	Student Credits	Faculty Equivalents	Productivity Index
College of Agriculture:						
Agricultural Economics	100	74	38	27	33	— 6
Agricultural Engineering	18	30	8	14	—23	47
Agronomy	46	19	60	65	6	56
Animal Science	19	3	—16	—14	180	—69
Biochemistry	25	10	26	29	9	20
Botany	— 6	— 8	87	96	— 2	102
Dairy Science	0	0	—30	—29	11	—35
Entomology	12	8	1	0	38	—28
Forestry	41	31	78	62	25	29
Home Economics	8	6	—48	—50	— 5	—47
Horticulture	—28	—33	—45	—48	0	—48
Poultry Science	—14	6	9	9	25	—13
Non-specified	0	60	7	13	—	—
College of Liberal Arts:						
Arts	21	21	49	40	38	1
Bacteriology	0	— 7	11	14	29	—12
Economics and Business Administration	6	3	22	18	3	14
Education	0	32	65	84	48	25
English	2	— 6	32	40	17	20
Geology and Geography	9	17	—12	— 1	0	— 1
Government	50	44	12	13	34	—16
History	10	6	49	49	28	16
Hotel Administration	— 9	17	— 5	41	0	41
Languages	— 8	—11	18	17	7	8
Music	8	20	—18	8	11	— 2
Philosophy	—44	—44	—22	—22	0	—22
Psychology	17	12	9	7	19	—10
Sociology	16	—10	31	30	31	— 1
Zoology	— 3	5	6	8	16	—17
Biology	100	52	18	—11	—	—
Non-specified	0	0	58	58	—	—
College of Technology:						
Chemical Engineering	33	40	132	157	47	76
Chemistry	2	— 4	13	18	28	— 8
Civil Engineering	— 9	— 6	61	74	7	62
Electrical Engineering	27	10	75	106	63	26
Mathematics	— 5	1	— 5	14	15	— 1
Mechanical Engineering	— 4	— 9	48	24	39	—10
Physics	13	— 1	62	59	15	38
General:						
Air Science	—50	—57	—28	—15	17	—27
Military Science	—47	—50	—13	—22	—13	—10
Physical Education, Men	0	—12	5	22	0	24
Physical Education, Women	37	38	26	19	— 3	23

Table 86. Summary of Percentage Change in Productivity Index, 1952-53 to 1958-59

College	Courses	Credits	Students	Student Credits	Faculty Equivalents	Productivity Index
Agriculture	9	8	0	5	12	— 6
Liberal Arts	8	7	23	25	18	6
Technology	5	1	32	37	27	8
General	—13	—21	4	17	— 1	18
Total	6	4	20	25	17	7

Table 87. Productivity Index Data, Percentage Distribution in the College, 1958-59

Department	Percentage of College Total				
	Courses	Credits	Students	Student Credits	Full-time Equivalent Faculty
College of Agriculture:					
Agricultural Economics	5.4	5.1	4.2	4.5	4.1
Agricultural Engineering	9.0	11.4	5.6	4.6	3.4
Agronomy	7.2	6.8	8.8	9.7	6.1
Animal Science	7.2	5.7	6.6	5.3	8.4
Biochemistry	6.7	8.3	9.0	13.3	10.1
Botany	7.6	8.3	18.2	21.0	12.8
Dairy Science	5.8	4.9	3.5	3.0	6.8
Entomology	4.0	4.2	3.4	3.2	3.7
Forestry	10.8	11.7	12.6	12.8	10.1
Home Economics	17.9	18.0	15.0	13.9	18.6
Horticulture	9.0	6.6	4.6	3.3	7.4
Poultry Science	8.1	2.8	4.6	3.7	8.4
Non-specified	1.3	1.2	3.7	1.6	—
College of Liberal Arts:					
Arts	9.1	8.0	7.0	5.8	9.1
Bacteriology	3.7	4.3	1.1	1.4	2.6
Economics and Business Administration	10.6	10.3	12.9	13.1	10.0
Education	4.1	6.4	3.8	4.5	5.2
English	10.4	9.7	17.5	17.7	20.4
Geology and Geography	4.7	4.7	4.2	4.9	5.0
Government	7.1	7.8	4.7	4.9	3.6
History	6.5	7.0	12.0	12.3	7.5
Hotel Administration	2.0	1.0	.7	.4	.8
Languages	8.9	9.1	5.7	5.7	7.5
Music	11.0	6.1	4.8	2.3	8.3
Philosophy	1.0	1.0	.8	.8	.8
Psychology	6.7	6.8	5.8	5.8	4.2
Sociology	5.7	6.0	6.8	7.1	4.6
Zoology	5.7	7.2	2.5	3.1	10.4
Biology	1.6	2.9	5.1	5.3	—
Non-specified	1.2	1.8	4.5	4.7	—
College of Technology:					
Chemical Engineering	8.0	8.0	2.2	2.0	3.3
Chemistry	18.1	23.3	17.5	20.9	25.2
Civil Engineering	12.5	12.3	9.9	9.4	7.9
Electrical Engineering	15.3	13.5	8.9	8.4	13.0
Mathematics	15.7	16.5	20.1	20.9	19.8
Mechanical Engineering	15.9	12.6	24.0	15.4	16.5
Physics	13.7	13.9	17.1	22.9	14.1
General:					
Air Science	14.8	15.9	17.1	29.3	22.3
Military Science	14.8	15.9	13.1	18.7	20.7
Physical Education, Men	22.2	20.4	16.3	8.9	28.6
Physical Education, Women	48.1	47.8	53.5	43.2	28.6

Table 88. Productivity Index Data, Percentage Distribution in the University, 1958-59

Department	Percentage of University Total Courses	Credits	Students	Student Credits	Full-time Equivalent Faculty
College of Agriculture:					
Agricultural Economics	1.2	1.1	.2	.3	.5
Agricultural Engineering	2.0	2.5	.3	.3	.4
Agronomy	1.6	1.5	.5	.5	.7
Animal Science	1.6	1.3	.3	.3	1.0
Biochemistry	1.5	1.9	.5	.8	1.2
Botany	1.7	1.9	1.0	1.2	1.5
Dairy Science	1.3	1.1	.2	.2	.8
Entomology	.9	.9	.2	.2	.4
Forestry	2.4	2.6	.7	.7	1.2
Home Economics	3.9	4.0	.8	.8	2.1
Horticulture	2.0	1.5	.2	.2	.9
Poultry Science	1.8	1.7	.2	.2	1.0
Non-specified	.3	.3	.2	.1	—
College of Liberal Arts:					
Arts	4.5	4.0	4.2	3.6	4.2
Bacteriology	1.9	2.1	.6	.8	1.2
Economics and Business Administration	5.3	5.2	7.7	8.1	4.7
Education	2.1	3.2	2.3	2.8	2.4
English	5.2	4.9	10.3	11.0	9.6
Geology and Geography	2.4	2.4	2.5	3.0	2.3
Government	3.5	3.9	2.8	3.0	1.7
History	3.3	3.5	7.1	7.6	3.5
Hotel Administration	1.0	.5	.4	.3	.4
Languages	2.5	2.6	3.3	3.5	3.5
Music	5.5	3.1	2.9	1.4	3.9
Philosophy	.5	.5	.5	.5	.4
Psychology	3.4	3.4	3.4	3.6	2.0
Sociology	2.9	3.0	4.0	4.4	2.1
Zoology	2.9	3.6	1.5	1.9	4.9
Biology	.8	1.4	3.0	3.3	—
Non-specified	.6	.9	2.7	2.9	—
College of Technology:					
Chemical Engineering	2.0	2.1	.4	.5	1.0
Chemistry	4.4	6.0	3.6	5.3	7.4
Civil Engineering	2.1	3.2	2.0	2.4	2.3
Electrical Engineering	3.7	3.5	1.8	2.1	3.8
Mathematics	3.8	4.2	4.1	5.3	5.9
Mechanical Engineering	4.1	3.2	4.9	3.9	4.9
Physics	3.4	3.6	3.5	5.8	4.2
General:					
Air Science	.8	.6	2.6	2.1	2.7
Military Science	.8	.6	2.0	1.3	2.5
Physical Education, Men	1.2	.8	2.5	.6	3.5
Physical Education, Women	2.6	1.9	8.1	3.1	3.5

Table 89. Productivity Index Data, Percentage Distribution in the College, 1952-53

Department	Courses	Credits	Students	Student Credits	Full-time Equivalent Faculty
	Percentage of College Total				
College of Agriculture:					
Agricultural Economics	2.9	3.2	3.3	3.7	3.4
Agricultural Engineering	8.3	9.5	5.2	4.2	4.9
Agronomy	5.4	6.2	5.5	6.1	6.4
Animal Science	6.4	6.0	7.8	6.6	3.4
Biochemistry	5.9	8.2	7.1	10.8	10.6
Botany	8.8	9.9	9.7	11.2	14.7
Dairy Science	6.4	5.3	5.1	4.4	6.8
Entomology	3.9	4.2	3.4	3.4	3.0
Forestry	8.3	9.7	7.0	8.3	9.1
Home Economics	18.1	18.4	29.1	29.6	21.9
Horticulture	13.7	10.7	8.4	6.6	8.3
Poultry Science	10.3	7.9	4.3	3.6	7.5
Non-specified	1.5	.8	4.0	1.5	—
College of Liberal Arts:					
Arts	8.1	7.1	5.8	5.2	7.7
Bacteriology	4.0	4.9	1.2	1.5	2.4
Economics and Business Administration	10.8	10.7	13.0	13.8	11.4
Education	4.5	5.2	2.9	3.1	4.1
English	11.0	11.1	16.2	15.7	20.6
Geology and Geography	4.7	4.3	5.9	6.2	5.9
Government	5.1	5.8	5.2	5.4	3.2
History	6.4	7.0	9.9	10.3	6.9
Hotel Administration	2.3	.9	.9	.4	1.0
Languages	10.4	10.9	5.9	6.1	8.2
Music	11.0	5.4	7.2	2.7	8.8
Philosophy	1.9	2.0	1.3	1.3	1.0
Psychology	6.1	6.5	6.5	6.8	4.2
Sociology	5.3	7.1	6.4	6.8	4.1
Zoology	6.4	7.3	2.8	3.5	10.6
Biology	.9	2.0	5.3	7.4	—
Non-specified	1.3	1.9	3.5	3.7	—
College of Technology:					
Chemical Engineering	6.3	5.8	1.2	1.1	2.9
Chemistry	18.5	24.3	20.5	24.3	25.0
Civil Engineering	10.5	9.9	7.4	6.8	9.4
Building Construction	3.8	3.2	.7	.6	—
Electrical Engineering	12.6	12.3	6.7	5.6	10.1
Mathematics	17.2	16.3	28.0	25.0	21.8
Mechanical Engineering	18.5	13.8	21.5	16.9	15.1
Physics	12.6	14.0	14.0	19.7	15.6
General:					
Air Science	25.8	29.4	24.5	33.7	18.8
Military Science	24.1	25.1	15.7	23.5	23.5
Physical Education, Men	19.3	18.2	16.1	7.1	28.3
Physical Education, Women	30.6	27.3	43.9	35.4	29.2

Table 90. Productivity Index Data, Percentage Distribution in the University, 1952-53

Department	Percentage of University Total				
	Courses	Credits	Students	Student Credits	Full-time Equivalent Faculty
College of Agriculture:					
Agricultural Economics	.6	.7	.2	.2	.4
Agricultural Engineering	1.8	2.0	.3	.3	.6
Agronomy	1.2	1.3	.3	.4	.8
Animal Science	1.4	1.3	.5	.4	.4
Biochemistry	1.3	1.8	.4	.7	1.3
Botany	1.9	2.1	.6	.8	1.8
Dairy Science	1.4	1.1	.3	.3	.8
Entomology	.8	.9	.2	.2	.4
Forestry	1.8	2.1	.4	.6	1.1
Home Economics	3.9	3.9	1.8	2.0	2.6
Horticulture	2.9	2.3	.5	.4	1.0
Poultry Science	2.2	1.7	.3	.2	.9
Non-specified	.3	.2	.3	.1	—
College of Liberal Arts:					
Arts	4.0	3.5	3.3	3.2	3.6
Bacteriology	2.0	2.4	.7	.9	1.1
Economics and Business Administration	5.4	5.2	7.5	8.4	5.3
Education	2.2	2.5	1.6	1.9	1.9
English	5.5	5.4	9.4	9.6	9.5
Geology and Geography	2.3	2.1	3.4	3.8	2.7
Government	2.5	2.8	3.0	3.3	1.5
History	3.1	3.4	5.7	6.3	3.2
Hotel Administration	1.2	.4	.5	.2	.5
Languages	2.9	3.0	3.4	3.7	3.8
Music	5.5	2.7	4.2	1.6	4.1
Philosophy	.9	1.0	.7	.8	.5
Psychology	3.0	3.2	3.8	4.2	1.9
Sociology	2.6	3.5	3.7	4.2	1.9
Zoology	3.1	3.6	.6	2.2	4.9
Biology	.4	1.0	3.1	4.6	—
Non-specified	.6	.9	2.0	2.3	—
College of Technology:					
Chemical Engineering	1.6	1.5	.2	.2	.8
Chemistry	4.6	6.5	3.8	5.5	6.8
Civil Engineering	2.6	2.7	1.4	1.6	2.5
Building Construction	.9	.9	.1	.1	—
Electrical Engineering	3.1	3.3	1.2	1.3	2.7
Mathematics	4.3	4.4	5.2	5.7	5.9
Mechanical Engineering	4.6	3.7	4.0	3.9	4.1
Physics	3.1	3.8	2.6	4.5	4.2
General:					
Air Science	1.7	1.5	4.3	3.1	2.7
Military Science	1.6	1.3	2.7	2.2	3.4
Physical Education, Men	1.3	.9	2.8	.7	4.1
Physical Education, Women	2.0	1.4	7.6	3.3	4.2

Table 91. Summary of Productivity Index Data, Percentage Distribution in the University, 1958-59

College	Percentage of University Total				
	Courses	Credits	Students	Student Credits	Full-time Equivalent Faculty
Agriculture	22.0	22.3	5.4	5.8	11.6
Liberal Arts	48.1	48.2	59.1	61.8	46.7
Technology	24.5	25.6	20.4	25.3	29.5
General	5.4	3.9	15.1	7.1	12.2
Total	100.0	100.0	100.0	100.0	100.0

Table 32. Summary of Productivity Index Data, Percentage Distribution in the University, 1952-53

College	Percentage of University Total Courses	Credits	Students	Student Credits	Full-time Equivalent Faculty
Agriculture	21.4	21.5	6.2	6.6	12.2
Liberal Arts	47.2	46.7	57.7	61.3	46.4
Technology	24.9	26.7	18.6	22.8	27.0
General	6.5	5.1	17.5	9.3	14.4
Total	100.0	100.0	100.0	100.0	100.0

PART THREE

Chapter 7. Time-Space Utilization Problems

Terminology Used

1. *Rooms* — Instructional space was classified by type of room as lecture or recitation rooms, teaching laboratories, or seminar and conference.

2. *Student Station* — A student station is defined as the total facilities necessary to accommodate one person at a given time in an instructional room. This may be a chair or seat in a classroom or a laboratory desk or similar facility. The number of stations in a given room was determined by direct count if possible, by conference with an instructor using that facility, by department estimate, or by some combination of these. Department estimates were often low, being based apparently on what was considered desirable rather than possible.

3. *Weekly Schedule* — A weekly schedule of 44 hours was taken as a base. This would consist of classes from 8 a.m. to noon and 1 p.m. to 5 p.m. Monday through Friday and 8 a.m. to noon on Saturday.

4. *Square Feet of Floor Space* — The floor area included was the net usable floor space in instructional rooms, determined in most cases by direct measurement. For a few Kingsbury Hall laboratories, the figures were taken from department estimates.

5. *Measures of Utilization* — All the regularly scheduled class activities were counted regardless of the time of day or evening in which the use occurred. The basic unit of time for reporting use was a class period of 50 minutes.

(a) *Room-Period Use* — The use of one room by a class group for one period is defined as one room period of use. Room period use is the number of hours that a room (or the average for a group of rooms) is occupied by a class.

(b) *Percentage of Room-Period Use* — This is the percentage of possible periods during the day or week that a room or a group of rooms is occupied by a class.

(c) *Student-Station-Period Use* — The use by a student of one student station for one period is defined as one student-station-period of use. Thus student-station-period use is the number of hours that student stations are occupied. This figure is usually related either to the number of existing student stations or to the number of possible student-station periods.

(d) *Student Hours Per Station* — This is the relationship between student-station-period use and the number of existing student stations for a given time period.

(e) *Percentage of Possible Student-Station-Period Use* — The student-station-period use may also be expressed as the percentage of possible periods during the week or other time that student stations are occupied.

(f) *Utilization of Student Stations in Occupied Rooms* — This is the average percentage of student stations occupied in classrooms when the classrooms are actually in use.

Examples

If an institution operates on a 44-hour week and has a total of 50 instructional rooms, it has a total of 2,200 possible room periods. If during the week a total of 1,100 class meetings are scheduled in these rooms, the average "room-period use" would be 22 hours. The "percentage of room-period use" on a weekly basis would be 50.

If during the week a room is occupied for 22 room periods by classes averaging 45 students each, its student-station-period use for the week would be 990. For a 60-student-station room with a weekly student-station-period use of 990, the "student hours per station" per week would be 16.5.

A room containing 60 student stations would have a total of 2,640 possible student station periods on a 44-hour weekly schedule. If during the week this group of student stations is occupied for a total of 990 periods, the "percentage of possible student-station-period use" for the room would be

$$37.5\%, \text{ or } \frac{16.5}{44} \times 100.$$

The Available Instructional Space

During the first semester, 1958-59, there were 7,013 student stations using 174,084 square feet of floor space in 171 rooms which were available throughout the day for regularly scheduled class activities.

Tables 93, 94, and 95 list the data for each room on campus classified by type. Table 96 lists a summary of the available space including the average number of square feet per student station, the average number of student stations per room, and the average number of square feet per room. The percentage distribution of available space is shown in Table 97.

Table 98 gives a summary of assignable square feet of floor area per student station in rooms for each major purpose. Table 99 gives a comparison of the square feet per student station for various types of rooms with corresponding data available for some other institutions.

During the fall semester, 1958-59, student enrollment was listed as 3,510. Based upon an assumed load of 17 class periods per week as a full-time equivalent, the number of full-time-equivalent (FTE) students is approximately 3,800. Using this latter figure, the relationship between the number of students and (1) the number of student stations and (2) the number of square feet of floor space occupied by those stations, is shown in Table 100. Included in this table are comparable data for the three institutions of the Florida system and the University of Nevada.

Table 93. Available Instructional Space, 1958-59
Lecture and Recitation Rooms

Building	Room Number	Number of Student Stations	Area (Square Feet)	Square Feet Per Student Station
Ballard	1	20	682	34.1
	2	75	774	10.3
	104	65	790	12.2
Conant	101	25	656	26.2
	103	89	1055	11.8
	104	48	681	14.2
	108	30	793	26.4
	201	90	1061	11.8
	204	45	556	12.4
	207	70	1059	15.1
Dairy	201	25	545	21.8
DeMeritt	17	36	510	14.2
	21	34	453	13.3
	22	33	495	15.0
	101	41	701	17.1
	112	39	701	18.0
	209	105	1216	11.6
	211	47	707	15.0
	302	123	1309	10.6
	304	78	789	10.1
	305	75	919	12.2
Forestry	108 B	25	513	20.5
Hewitt	208	85	840	9.9
	213	48	583	12.1
James	102	32	591	18.5
	113	36	745	20.7
	205	24	481	20.0
	207	60	729	12.1
	301	170	1912	11.2
Kingsbury	103	36	710	19.7
	133	24	710	29.6
	135	60	956	15.9
	221	42	1021	24.3
	223	42	761	18.1
	229	42	769	18.3
	231	60	1023	17.0
	236	110	1385	12.6
	248	45	872	19.4
	303	24	560	23.3
Morrill	3	32	610	19.1
	9	67	807	12.0
	103	71	723	10.2
	105	71	731	10.3
	202	78	734	9.4
	211	72	748	10.4
	301	60	1283	21.4
	304	64	1283	20.0
Murkland	Auditorium	356	2405	6.7
	6	40	596	14.9
	7–8	30	624	20.8
	9	40	617	15.4
	14	145	1025	7.1
	16	55	707	12.8
	21	46	580	12.6
	24	42	580	13.8
	26	60	659	11.0
	201	40	615	15.4
	203	60	583	9.7
	206	60	583	9.7
	207	60	618	10.3
	210	60	625	10.4
	212	60	639	10.6
	215	60	554	9.2
	216	60	633	10.6
	302	153	1552	10.1
	304	200	2021	10.1
Nesmith	116	50	611	12.2
	205	57	830	14.6
	220	129	1274	9.9
N. H. Hall	16	35	767	21.9
Pettee	7	35	847	24.2
	102 A	70	811	11.6
	102 B	50	622	12.4
	104	66	972	14.7
	212	66	1112	16.8
	305	35	446	12.7
Thompson	301	72	1680	23.3
	308	50	674	13.5
All Rooms Combined	78	5015	65394	13.0

Table 94. Available Instructional Space, 1958-59
Laboratory Rooms

Building	Room Number	Number of Student Stations	Area (Square Feet)	Square Feet Per Student Station
Conant	1	16	684	42.8
	2	30	689	23.0
	10	4	185	46.2
	12	5	227	45.4
	206	8	384	21.3
Dairy	105	12	517	43.1
DeMeritt	13	12	499	41.6
	18	12	632	52.7
	23	12	573	47.8
	27	40	1124	28.1
	110	40	1626	40.6
	208	28	563	20.1
Forestry	2	25	472	18.9
	108 A	25	838	33.5
	110	15	208	13.9
Hewitt	107	16	660	41.2
	108	18	3164	176.0
	209	14	623	44.5
	210	20	634	31.7
	211	18	561	31.2
	215	20	1649	82.4
	222	22	554	25.2
	223	14	958	68.4
	224	20	1608	80.4
James	14	31	1727	55.7
	103	11	861	78.0
	104	24	1168	48.7
	110	17	850	50.4
	204	36	1152	32.0
	208	30	1228	40.9
	210	33	1228	37.2
	303	56	3380	60.4
Kingsbury	105	16	4000	250.0
	112	12	3850	321.0
	113	15	1400	93.0
	115	12	1400	117.0
	117	12	2250	188.0
	118	15	4234	282.0
	120	10	1620	162.0
	122	25	3538	142.0
	126	16	490	30.6
	128	18	1250	69.4
	132	16	3135	196.0
	214	16	405	25.3

Table 94. Continued

Building	Room Number	Number of Student Stations	Area (Square Feet)	Square Feet Per Student Station
	249	34	3120	91.8
	255	17	746	43.9
	301	28	1005	35.9
	306	32	1346	42.1
	308	28	1072	38.3
	311	28	1376	49.1
	313	32	1760	55.0
	318	24	830	34.6
Morrill	1	5	313	62.6
	2	30	731	24.4
	5	5	282	28.0
Murkland	117	16	374	22.0
Nesmith	21	24	927	38.6
	107	24	792	33.0
	108	16	383	23.9
	110	24	618	25.8
	113	42	1100	26.2
	203-4	16	799	50.0
	214	16	605	37.8
	222	10	386	38.6
	224	36	1115	31.0
	308	6	428	71.3
	314	32	599	18.7
	319	24	373	15.5
	321	8	242	30.2
	324	20	596	29.8
	326	36	1123	31.2
N. H. Hall	Gym	80	8000	100.0
	2	65	1300	32.5
	8	20	1620	81.0
	11	25	809	32.4
	104	25	1074	43.0
Pettee	1	12	2413	201.1
	2	10	456	45.6
	2[illegible]	20	1075	53.7
	304	16	1202	75.1
	308	12	705	58.8
	309	3	181	60.3
Putnam	1	40	747	18.7
	7	15	4050	303.0
	18	45	747	16.6
All Rooms Combined	85	1868	106218	56.9

Table 95. Available Instructional Space, 1958-59 Seminar and Conference Rooms

Building	Room Number	Number of Student Stations	Area (Square Feet)	Square Feet Per Student Station
Conant	203	16	276	17.2
	206 C	10	168	16.8
DeMeritt	108	14	311	22.2
	206	12	261	21.8
	207	30	356	11.9
Murkland	303	16	472	29.5
Nesmith	310	12	196	16.3
Pettee	201	20	432	21.6
All Rooms Combined	8	130	2472	19.0

Table 96. Summary of Available Instructional Space, 1958-59

Type of Room	Number of Rooms	Number of Student Stations	Number of Square Feet	Average Number of Square Feet/Student Station	Average Number of Student Stations/Room	Average Number of Square Feet/Room
Lecture	78	5015	65394	13.0	64.3	838.4
Laboratory	85	1868	106218	56.9	22.0	1249.6
Seminar	8	130	2472	19.0	16.2	309.0
All Rooms Combined	171	7013	174084	24.8	41.0	1018.0

Table 97. Percentage Distribution of Available Instructional Space, 1958-59

Type of Rooms	Rooms	Student Stations	Area
Lecture	45.6	71.5	37.6
Laboratory	49.7	26.6	61.0
Seminar	4.7	1.9	1.4
Total	100.0	100.0	100.0

Table 98. Summary of Square Feet of Floor Area Per Student Station in Rooms for Each Major Purpose

Number of Square Feet Per Student Station	Stations in Lecture Rooms		Stations in Laboratories		Stations in Seminar Rooms	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
9 or less	973	19.4	0	0.0	0	0.0
10–14.9	2746	54.8	15	.8	40	30.8
15–19.9	725	14.5	166	8.9	28	21.5
20–24.9	472	9.4	121	6.5	46	35.4
25–29.9	79	1.5	187	10.0	16	12.5
30–39.9	20	.4	459	24.6	0	0.0
40–49.9	0	0.0	299	16.0	0	0.0
50–59.9	0	0.0	140	7.5	0	0.0
60–79.9	0	0.0	129	6.9	0	0.0
80–99.9	0	0.0	109	5.8	0	0.0
100–124.9	0	0.0	92	4.9	0	0.0
125–149.9	0	0.0	25	1.3	0	0.0
150–174.9	0	0.0	10	.5	0	0.0
175–199.9	0	0.0	46	2.5	0	0.0
200 or more	0	0.0	70	3.8	0	0.0
Total	5015	100.0	1868	100.0	130	100.0

Table 99. Some Comparisons of Area Per Student Station

	Square Feet Per Student Station		
	Lecture Rooms	Laboratories	Seminar Rooms
UNH	13.0	56.9	19.0
University of Florida	13.0	37.5	21.4
Florida State	13.8	29.8	18.8
Florida A&M	17.0	51.0	11.2

Table 100. Some Comparisons of Instructional Space

	Rooms	Full-Time Equivalent Students	Student Stations	Student Stations Per Student	Square Feet	Square Feet Per Student	Square Feet Per Student Station	Square Feet Per Room	Student Stations Per Room
UNH	171	3832	7013	1.83	174084	45.4	24.8	1018	41.0
U. of Florida	369	12585	14508	1.15	229392	23.8	20.6	811	39.0
Florida State	227	7347	8494	1.16	162576	22.1	19.2	716	37.0
Florida A & M	149	2508	5171	2.06	129551	51.7	25.1	869	35.0
U. of Nevada	75	2468	3401	1.38	54509	22.1	16.0	726	45.0

The Use of Instructional Space

Many variables are involved in a study of the use of instructional space. The utilization data given in this report consider such factors as type of space, day of the week, hour of the day, and the capacity of the room involved. (Care must be taken not to overemphasize the inferences drawn from one or two figures for the University as a whole.)

Utilization by Type of Space — Tables 101, 102, and 103 present utilization data by type of room, for all rooms regularly used for scheduled instructional activity. Averages for each type of room are shown at the end of the corresponding table. The data are summarized in Table 104. This table shows that, for the University as a whole, instructional rooms were used on the average 15.0 periods per week, 34.1 percent of a 44-hour base. The table also shows that student stations were used on the average 9.3 periods per week, for a percentage of 21.1. During the time that rooms were actually in use, only 49.4 percent of the stations were employed.

From Table 105, it can be seen that the number of periods per week which individual rooms were used varied from 0 to 45. For the University as a whole, about one-half of the rooms were used not more than 15 periods per week and only 1/20 of the rooms were used more than 30 periods per week.

Table 106 shows average data for each instructional building. Utilization ranged from 4.0 to 22.3 periods per week. When only the buildings with ten or more instructional rooms are considered, the range is from 11.2 to 22.3 periods per week. It should be noted that in some buildings rooms which are listed as instructional rooms were not used for any class during the week.

Table 101. Utilization Data, Semester I, 1958-59
Lecture and Recitation Rooms

			Room Use, Weekly Basis			Student-Station Use, Weekly Basis		
Building	Number of Room	Number of Student Stations	Total Room Periods of Use	Percentage of Possible Room-Period Use, 44-Hr. Week	Total Student Station Periods Occupied	Student Hours Per Station	Percentage of Possible Station Use, 44-Hr. Week	Percentage of Station Use When Room Actually in Use
Ballard	1	20	3	6.8	12	0.6	1.3	20.0
	2	75	31	70.4	813	10.0	22.7	32.3
	104	65	14	31.8	248	3.8	8.6	27.2
Conant	101	25	14	31.8	213	8.5	19.3	60.8
	103	89	19	43.1	935	10.5	23.8	55.2
	104	48	14	31.8	323	6.7	15.2	48.0
	108	30	23	52.2	699	23.3	52.9	101.3
	201	90	21	47.7	1143	12.7	28.8	60.4
	204	45	15	34.0	353	7.8	17.7	52.2
	207	70	15	34.0	927	13.2	30.0	88.2
Dairy	201	25	14	31.8	114	4.6	10.4	32.5
DeMeritt	17	36	19	43.1	353	9.8	22.2	51.6
	21	34	16	36.3	318	9.3	21.1	58.4
	22	33	21	47.7	383	11.6	26.3	55.2
	101	41	27	61.3	523	12.7	28.8	47.2
	112	39	23	52.2	447	11.4	25.9	49.8
	209	105	7	15.9	450	4.3	9.7	61.2
	211	47	24	54.5	393	8.4	19.0	34.8
	302	123	42	95.4	2829	23.0	52.2	54.7
	304	78	21	47.7	765	9.8	22.2	46.7
	305	75	31	70.4	1195	15.9	36.1	51.3
Forestry	108 B	25	12	27.2	177	7.1	16.1	59.0
Hewitt	208	85	9	20.4	417	4.9	11.1	54.4
	213	48	9	20.4	333	6.9	15.6	77.0
James	102	32	5	11.3	27	.8	1.9	16.8
	113	36	19	43.1	524	14.3	32.9	76.6
	205	24	17	38.6	200	8.3	18.8	49.0
	207	60	19	43.1	510	8.5	19.3	44.7
	301	170	24	54.5	1236	7.2	16.3	30.2
Kingsbury	103	36	14	31.8	303	8.4	19.0	60.1
	133	24	31	70.4	443	18.5	42.0	59.5
	135	60	19	43.1	458	7.6	17.2	40.1
	221	42	21	47.7	494	11.8	26.8	56.0
	223	42	24	54.5	474	11.3	25.6	47.0
	229	42	23	52.2	563	13.4	30.4	58.2

	231	60	21	47.7	535	8.9	20.2	42.4
	236	110	17	38.6	823	7.5	17.0	44.0
	248	45	22	50.0	662	14.7	33.4	66.8
	303	24	15	34.0	36	1.5	3.4	10.0
Morrill	3	32	24	54.5	331	10.3	23.4	43.0
	9	67	22	50.0	537	8.1	18.4	36.4
	103	71	24	54.5	867	12.2	27.7	50.8
	105	71	28	63.6	1059	14.9	33.8	53.2
	202	78	22	50.0	1084	13.9	31.5	63.1
	211	72	24	54.5	1155	16.0	36.3	66.8
	301	60	22	50.0	791	13.2	30.0	59.9
	304	64	19	43.1	624	9.7	22.0	51.3
Murkland	Auditorium	356	24	54.5	2474	6.9	15.6	28.9
	6	40	24	54.5	803	20.1	45.6	83.6
	7-8	30	23	52.2	301	10.0	22.7	43.6
	9	40	29	65.9	749	18.7	42.5	64.5
	14	145	24	54.5	990	6.8	15.4	28.4
	16	55	18	40.9	330	6.0	13.6	33.3
	21	46	21	47.7	463	10.1	22.9	47.9
	24	42	27	61.3	654	15.6	35.4	57.6
	26	60	25	56.8	638	10.6	24.0	42.5
	201	40	19	43.1	387	9.7	22.0	50.9
	203	60	27	61.3	837	13.9	31.5	51.6
	206	60	27	61.3	639	10.7	24.3	39.4
	207	60	25	56.8	552	9.2	20.9	36.8
	210	60	9	20.4	240	4.0	9.0	44.4
	212	60	20	45.4	474	7.9	17.9	39.5
	215	60	27	61.3	624	10.4	23.6	38.5
	216	60	24	54.5	564	9.4	21.3	39.1
	302	153	27	61.3	1191	7.8	17.7	28.8
	304	200	9	20.4	1179	5.9	13.4	65.5
Nesmith	116	50	19	43.1	251	5.0	11.3	26.4
	205	57	22	50.0	316	5.5	12.5	25.1
	220	129	20	45.4	880	6.8	15.4	34.1
New Hampshire Hall	16	35	3	6.8	48	1.4	3.1	45.7
Pettee	7	35	21	47.7	316	9.0	20.4	42.9
	102 A	70	24	54.5	792	11.3	25.6	47.1
	102 B	50	20	45.4	467	9.3	21.1	46.7
	104	66	20	45.4	420	6.4	14.5	31.8
	212	66	14	31.8	272	4.1	9.3	29.4
	305	35	12	27.2	195	5.6	12.7	46.4
Thompson	301	72	24	54.5	660	9.2	20.9	38.1
	308	50	12	27.2	270	5.4	12.2	45.0
Total	78	5015	1560	—	47075	—	—	—
Average	—	—	20.0	45.3	—	9.4	21.3	45.2

Table 102. Utilization Data, Semester I, 1958-59
Laboratory Rooms

			Room Use, Weekly Basis			Student-Station Use, Weekly Basis		
Building	Number of Room	Number of Student Stations	Total Room Periods of Use	Percentage of Possible Room-Period Use, 44-Hr. Week	Total Student Station Periods Occupied	Student Hours Per Station	Percentage of Possible Station Use, 44-Hr. Week	Percentage of Station Use When Room Actually in Use
Conant	1	16	3	6.8	39	2.4	5.4	81.2
	2	30	21	47.7	384	12.8	29.0	60.9
	10	4	0	0.0	0	0.0	0.0	0.0
	12	5	0	0.0	0	0.0	0.0	0.0
	206 A, B	8	2	4.5	16	2.0	4.5	100.0
Dairy	105	12	2	4.5	24	2.0	4.5	100.0
DeMeritt	13	12	0	0.0	0	0.0	0.0	0.0
	18	12	9	20.4	96	8.0	18.1	88.8
	23	12	0	0.0	0	0.0	0.0	0.0
	27	40	11	25.0	246	6.1	13.8	55.9
	110	40	15	34.0	417	10.4	23.6	69.5
	208	28	12	27.2	162	5.8	13.1	48.2
Forestry	2	25	13	29.5	184	7.4	16.8	56.6
	108 A	25	10	22.7	118	4.7	10.6	47.2
	110	15	3	6.8	39	2.6	5.9	86.6
Hewitt	107	16	16	36.3	240	15.0	34.0	93.7
	108	18	8	18.1	92	5.1	11.5	63.8
	209	14	6	13.6	90	6.4	14.5	107.1
	210	20	16	36.3	176	8.8	20.0	55.0
	211	18	8	18.1	168	9.3	21.1	116.6
	215	20	16	36.3	280	14.0	31.8	87.5
	222	22	24	54.5	456	20.7	47.0	86.3
	223	14	8	18.1	108	7.7	17.5	96.4
	224	20	17	38.6	311	15.5	35.2	91.4
James	14	31	18	40.9	492	15.9	36.1	88.2
	103	11	13	29.5	80	7.3	16.5	24.6
	104	24	18	40.9	312	13.0	29.5	72.2
	110	17	12	27.2	120	7.1	16.0	58.8
	204	36	6	13.6	120	3.3	7.5	24.5
	208	30	5	11.3	25	8.3	18.8	16.6
	210	33	9	20.4	198	6.0	13.6	66.6
	303	56	33	75.0	1719	30.7	69.7	93.0
Kingsbury	105	16	30	68.1	422	26.4	60.0	87.9
	112	12	24	52.2	291	24.2	55.0	105.4
	113	15	3	6.8	3	.2	.4	6.6
	115	12	6	13.6	69	5.7	12.9	95.8
	117	12	0	0.0	0	0.0	0.0	0.0
	118	15	0	0.0	0	0.0	0.0	0.0
	120	10	0	0.0	0	0.0	0.0	0.0
	122	25	7	15.9	77	3.1	7.0	44.0

	126	16	10	22.7	160	10.0	22.7	100.0
	128	18	3	6.8	45	2.5	5.6	83.3
	132	16	12	27.2	123	7.7	17.5	64.0
	214	16	21	47.7	261	16.3	37.0	77.6
	249	34	18	40.9	165	4.9	11.1	26.9
	255	17	5	11.3	35	2.1	4.7	41.1
	301	28	19	43.1	412	14.7	33.4	71.4
	306	32	15	34.0	321	10.0	22.7	66.8
	308	28	9	20.4	180	6.4	14.5	71.4
	311	28	26	59.0	605	21.6	49.0	83.1
	313	32	21	47.7	423	13.2	30.0	62.9
	318	24	9	20.4	177	7.4	16.8	81.9
Morrill	1	5	0	0.0	0	0.0	0.0	0.0
	2	30	15	34.0	175	5.8	13.0	38.8
	5	5	0	0.0	0	0.0	0.0	0.0
Murkland	117	16	34	77.2	544	34.0	77.2	100.0
Nesmith	21	24	9	20.4	47	1.9	4.3	21.7
	107	24	18	40.9	331	13.8	31.3	76.6
	108	16	3	6.8	39	2.4	5.4	81.2
	110	24	26	59.0	418	17.4	39.5	66.9
	113	42	41	93.1	1429	34.0	77.2	82.9
	203–4	16	13	29.5	108	6.7	15.2	51.9
	214	16	0	0.0	0	0.0	0.0	0.0
	222	10	3	6.8	15	1.5	3.4	.5
	224	36	8	18.1	196	5.4	12.2	68.0
	308	6	1	2.2	1	.2	.4	16.6
	314	32	14	31.8	79	2.5	5.6	17.6
	319	24	18	40.9	199	8.3	18.8	46.0
	323	8	7	15.9	13	1.6	3.6	23.2
	324	20	9	20.4	117	5.8	13.1	65.0
	326	36	14	31.8	372	10.3	23.4	73.8
New Hampshire Hall	Gym	80	26	59.0	946	11.8	26.8	45.4
	2	65	35	79.5	952	14.6	33.1	41.8
	8	20	15	34.0	282	14.1	32.0	94.0
	11	25	15	34.0	171	6.8	15.4	45.6
	104	25	14	31.8	302	12.1	27.5	86.2
Pettee	1	12	3	6.8	9	.7	1.5	25.0
	2	10	3	6.8	9	.9	2.0	30.0
	211*	26	6	13.6	96	3.7	8.4	61.5
	304	16	6	13.6	30	1.8	4.0	31.2
	308	12	13	29.5	56	4.7	10.6	35.8
	309	3	0	0.0	0	0.0	0.0	0.0
Putnam	1	40	2	4.5	4	.1	.2	5.0
	7	15	6	13.6	78	5.2	11.8	86.6
	18	45	4	9.0	12	.3	.6	6.6
Total	85	1868	953	—	17511	—	—	—
Average	—	—	11.2	25.5	—	9.3	21.1	65.3

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* Includes 212 A

Table 103. Utilization Data, Semester I, 1958-59
Seminar and Conference Rooms

			Room Use, Weekly Basis			Student-Station Use, Weekly Basis		
Building	Number of Room	Number of Student Stations	Total Room Periods of Use	Percentage of Possible Room-Period Use, 44-Hr. Week	Total Student Station Periods Occupied	Student Hours Per Station	Percentage of Possible Station Use, 44-Hr. Week	Percentage of Station Use When Room Actually in Use
Conant	203	16	11	25.0	137	8.6	19.5	77.8
	206 C	10	0	0.0	0	0.0	0.0	0.0
DeMeritt	108	14	0	0.0	0	0.0	0.0	0.0
	206	12	3	6.8	33	2.7	6.1	91.6
Morrill	207	30	18	40.9	296	9.7	22.0	54.8
Murkland	303	16	6	13.6	36	2.2	5.0	37.5
Nesmith	310	12	3	6.8	15	1.2	2.8	41.6
Pettee	201	20	9	20.4	34	1.7	3.8	18.8
Total	8	130	50	—	551	—	—	—
Average	—	—	6.2	14.1	—	4.2	9.5	51.8

Table 104. Summary of Utilization Data, Semester I, 1958-59

			Room Use, Weekly Basis			Student-Station Use, Weekly Basis		
Type of Room	Number of Rooms	Number of Student Stations	Total Room Periods of Use	Percentage of Possible Room-Period Use, 44-Hr. Week	Total Student Station Periods Occupied	Student Hours Per Station	Percentage of Possible Station Use, 44-Hr. Week	Percentage of Station Use When Room Actually in Use
Lecture	78	5010	1560	45.3	47075	9.4	21.3	45.2
Laboratory	85	1868	953	25.5	17511	9.3	21.1	65.3
Seminar	8	130	50	14.1	551	4.2	9.5	51.8
Total	171	7013	2563	—	65137	—	—	—
Average	—	—	15.0	34.1	—	9.3	21.1	49.4

Table 105. Distribution of Instructional Rooms by Number of Periods Used Per Week
Semester I, 1958-59

Number of Periods Used Per Week	Lecture		Laboratory		Seminar		All Types	
	Number of Rooms	Per Cent of Total	Number of Rooms	Per Cent of Total	Number of Rooms	Per Cent of Total	Number of Rooms	Per Cent of Total
0–5	3	3.8	26	30.6	4	50.0	33	19.3
6–10	5	6.4	20	23.6	2	25.0	27	15.8
11–15	12	15.4	16	18.8	1	12.5	29	16.9
16–20	16	20.6	10	11.8	1	12.5	27	15.8
21–25	30	38.4	5	5.9	0	0.0	35	20.5
26–30	8	10.3	4	4.7	0	0.0	12	7.0
31–35	3	3.8	3	3.5	0	0.0	6	3.5
36–40	0	0.0	0	0.0	0	0.0	0	0.0
41–45	1	1.3	1	1.1	0	0.0	2	1.2
46–50	0	0.0	0	0.0	0	0.0	0	0.0
Total	78	100.0	85	100.0	8	100.0	171	100.0

Table 106. Instructional Use by Building
Semester I, 1958-59
All Types of Rooms

Building	Number of Rooms	Average Room Periods of Use	Number of Student Stations	Average Student Hours Per Station
Ballard	3	16.0	160	5.0
Conant	14	11.2	486	7.7
Dairy	2	8.0	37	3.3
DeMeritt	18	15.6	781	8.3
Forestry	4	9.5	90	5.4
Hewitt	11	12.5	295	10.4
James	13	15.2	560	10.1
Kingsbury	30	14.8	891	9.3
Morrill	12	18.2	585	9.5
Murkland	21	22.3	1659	10.9
Nesmith	19	13.1	582	6.9
N. H. Hall	6	18.0	250	10.1
Pettee	13	11.6	415	4.6
Putnam	3	4.0	100	1.9
Thompson	2	18.0	122	7.3
Total	171		7013	

Utilization by Day of the Week — Utilization data for each type of room is shown as a function of the day of the week in Tables 107, 108, and 109. The summary for the University as a whole is given in Table 110, from which it can be observed that rooms were used on an average of 3 periods per day on Monday, Wednesday, and Friday, and an average of 2 student stations per day on the same days. The total student stations used for each day of the week is shown in Table 111. The highest value is assigned an index value of 100 and usage during other periods calculated as a percentage of the highest value. Thus, it can be seen that student-station-period use on Thursday was 62.5 percent of the load on Monday.

Utilization by Hour of the Day — The utilization distribution as a function of the hour of the day, for each type of room, is shown in Tables 112, 113, and 114. Table 115 summarizes the data for all rooms combined. From that table it can be observed that for the University as a whole, the heaviest use of rooms was made from 9-10 o'clock in the morning. During that period the average room was used for about three of the six mornings of the week. Similarly, student stations were used about 2 periods per week.

The percentage distribution for each type of instructional space as a function of the hour of the day is shown in Tables 116, 117, and 118. It is interesting to note that 74 percent of the room-period use of lecture rooms occurs before 12 noon. Only 37 percent of the laboratory room-period use occurs in the same interval. The percentage distribution for all rooms combined is shown in Table 119, which indicates that 60 percent of all room-period use occurs during the hours of 8-12 a.m. An index of use is shown in Table 120, using the same basis as was employed for the distribution by the day of the week. The number of lectures from 3-4 p.m. is only 16.6 percent of those from 9-10 a.m.

Table 107. Instructional Room Utilization by Days of the Week
Semester I, 1958-59
Lecture and Recitation Rooms

Day of Week	Total Room Periods Used	Room-Period Use		Total Student Station Periods Occupied	Student-Station-Period Use	
		Average Room Periods of Use for Day	Percentage of Possible Utilization Based on Week of 44 Periods		Average Student Hours Per Station for Day	Percentage of Possible Utilization Based on Week of 44 Periods
Monday	362	4.7	58.1	11368	2.3	28.3
Tuesday	215	2.8	34.7	6438	1.3	16.0
Wednesday	362	4.6	57.2	11083	2.2	27.6
Thursday	208	2.7	33.3	5973	1.2	14.9
Friday	322	4.1	51.6	9539	1.9	23.8
Saturday	91	1.2	29.1	2674	.5	13.3
Total	1560			47075		

Table 108. Instructional Room Utilization by Days of the Week
Semester I, 1958-59
Laboratory Rooms

Day of Week	Room-Period Use			Student-Station-Period Use		
	Total Room Periods Used	Average Room Periods of Use for Day	Percentage of Possible Utilization Based on Week of 44 Periods	Total Student Station Periods Occupied	Average Student Hours Per Station for Day	Percentage of Possible Utilization Based on Week of 44 Periods
Monday	175	2.1	25.7	3220	1.7	21.5
Tuesday	235	2.8	34.5	4442	2.4	29.7
Wednesday	199	2.3	29.3	3336	1.8	22.3
Thursday	165	1.9	24.4	3056	1.6	20.4
Friday	153	1.8	22.5	2948	1.6	19.7
Saturday	26	.3	7.6	509	.3	6.8
Total	953			17511		

Table 109. Instructional Room Utilization by Days of the Week
Semester I, 1958-59
Seminar and Conference Rooms

Day of Week	Room-Period Use			Student-Station-Period Use		
	Total Room Periods Used	Average Room Periods of Use for Day	Percentage of Possible Utilization Based on Week of 44 Periods	Total Student Station Periods Occupied	Average Student Hours Per Station for Day	Percentage of Possible Utilization Based on Week of 44 Periods
Monday	6	.7	9.4	85	.6	8.2
Tuesday	7	.9	10.9	69	.5	6.6
Wednesday	12	1.5	18.7	134	1.0	12.9
Thursday	16	2.0	25.0	147	1.1	14.1
Friday	7	.9	10.9	93	.7	8.9
Saturday	2	.2	6.2	23	.2	4.4
Total	50			551		

Table 110. Summary of Instructional Room Utilization by Days of the Week
Semester I, 1958-59
All Instructional Rooms

Day of Week	Room-Period Use			Student-Station-Period Use		
	Total Room Periods Used	Average Room Periods of Use for Day	Percentage of Possible Utilization Based on Week of 44 Periods	Total Student Station Periods Occupied	Average Student Hours Per Station for Day	Percentage of Possible Utilization Based on Week of 44 Periods
Monday	543	3.2	39.7	14673	2.1	26.1
Tuesday	457	2.7	33.4	10949	1.6	19.5
Wednesday	573	3.3	41.9	14553	2.1	25.9
Thursday	389	2.3	28.4	9176	1.3	16.3
Friday	[illegible]	2.8	35.2	12580	1.8	22.4
Saturday	[illegible]	.7	17.4	3206	.5	11.4
Total	2563			65137		

Table 111. Variation by Day of Week in Use of Student Stations

Day of Week	Number of Student Stations Used Per Day			
	Lecture	Laboratory	Seminar	All
Monday	*11368*	3220	85	*14673*
Tuesday	6438	*4442*	69	10949
Wednesday	11083	3336	134	14553
Thursday	5973	3056	*147*	9176
Friday	9539	2948	93	12580
Saturday	2674	509	23	3206

INDEX OF USE*

Day of Week	Lecture	Laboratory	Seminar	All
Monday	*100.0*	72.4	57.8	*100.0*
Tuesday	56.6	*100.0*	46.9	74.6
Wednesday	97.4	75.1	91.1	99.1
Thursday	51.6	68.7	*100.0*	62.5
Friday	83.9	66.3	63.2	85.7
Saturday	47.0	22.8	31.2	43.6

* Highest value for week — 100.0

Table 112. Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
Lecture and Recitation Rooms

	Room-Period Use			Student-Station-Period Use		
Hour of Day	Total Room Periods Used	Average Room Periods of Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods	Total Student Station Periods Occupied Weekly	Average Student Hours Per Station for Week	Percentage of Possible Utilization Based on Week of 44 Periods
8–9 a.m.	285	3.6	60.8	8121	1.6	27.0
9–10	345	4.4	73.7	10403	2.1	34.6
10–11	293	3.7	62.6	8946	1.8	29.7
11–12	232	3.0	49.6	8159	1.6	27.1
12–1 p.m.	40	.5	8.5	1608	.3	5.3
1–2	100	1.3	25.6	2884	.6	11.5
2–3	111	1.4	28.5	2978	.6	11.8
3–4	72	.9	18.5	1726	.3	6.9
4–5	49	.6	12.6	1170	.2	4.7
5–6	19	.2	4.9	643	.1	2.6
Evening	14	.2	3.6	437	.1	1.7
Total	1560			47075		

Table 113. Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
Laboratory Rooms

	Room-Period Use			Student-Station-Period Use		
Hour of Day	Total Room Periods Used	Average Room Periods of Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods	Total Student Station Periods Occupied Weekly	Average Student Hours Per Station for Week	Percentage of Possible Utilization Based on Week of 44 Periods
8–9 a.m.	41	.5	8.0	650	.3	5.8
9–10	87	1.0	17.1	1431	.8	12.8
10–11	117	1.4	22.9	2249	1.2	20.1
11–12	110	1.3	21.6	2115	1.1	18.9
12–1 p.m.	46	.5	9.0	931	.5	8.3
1–2	85	1.0	20.0	1433	.8	15.3
2–3	169	2.0	39.8	3026	1.6	32.4
3–4	164	1.9	38.6	3079	1.6	33.0
4–5	98	1.2	23.1	1780	.9	19.1
5–6	22	.3	5.2	528	.3	5.6
Evening	14	.2	3.3	289	3.3	3.1
Total	953			17511		

Table 114. Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
Seminar and Conference Rooms

	Room-Period Use			Student-Station-Period Use		
Hour of Day	Total Room Periods Used	Average Room Periods of Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods	Total Student Station Periods Occupied Weekly	Average Student Hours Per Station for Week	Percentage of Possible Utilization Based on Week of 44 Periods
8–9 a.m.	0	0.0	0.0	0	0.0	0.0
9–10	10	1.2	20.8	122	.9	15.6
10–11	6	.7	12.5	116	.9	14.9
11–12	12	1.5	25.0	135	1.0	17.3
12–1 p.m.	0	0.0	0.0	0	0.0	0.0
1–2	3	.4	7.5	11	.1	1.7
2–3	7	.9	17.5	70	.5	10.8
3–4	5	.6	12.5	51	.4	7.8
4–5	3	.4	7.5	26	.2	2.3
5–6	1	.1	2.5	11	.1	1.7
Evening	3	.4	7.5	9	.1	1.4
Total	50			551		

Table 115. Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
All Rooms Combined

	Room-Period Use			Student-Station-Period Use		
Hour of Day	Total Room Periods Used	Average Room Periods of Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods	Total Student Station Periods Occupied Weekly	Average Student Hours Per Station for Week	Percentage of Possible Utilization Based on Week of 44 Periods
8–9 a.m.	326	1.9	31.8	8771	1.2	20.8
9–10	442	2.6	43.1	11956	1.7	28.4
10–11	416	2.4	40.5	11311	1.6	26.9
11–12	354	2.1	34.5	10409	1.5	24.7
12–1 p.m.	86	.5	8.4	2539	.4	6.0
1–2	188	1.1	22.0	4328	.6	12.3
2–3	287	1.7	33.6	6074	.9	17.3
3–4	241	1.4	28.2	4856	.7	13.8
4–5	150	.9	17.5	2976	.4	8.5
5–6	42	.2	4.9	1182	.2	3.4
Evening	31	.2	3.6	735	.1	2.1
Total	2563			65137		

Table 116. Percentage Distribution of Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
Lecture and Recitation Rooms

		Room-Period Use Percentage of Total			Student-Station-Period Use Percentage of Total	
Hour of Day	Total Number at Each Hour	At Each Hour	Cumulative	Total Number at Each Hour	At Each Hour	Cumulative
8–9 a.m.	285	18.4	18.4	8121	17.2	17.2
9–10	345	22.1	40.5	10403	22.0	39.2
10–11	293	18.8	59.3	8946	19.0	58.2
11–12	232	14.9	74.2	8159	17.3	75.5
12–1 p.m.	40	2.6	76.8	1608	3.4	78.9
1–2	100	6.4	83.2	2884	6.2	85.1
2–3	111	7.1	90.3	2978	6.3	91.4
3–4	72	4.6	94.9	1726	3.7	95.1
4–5	49	3.1	98.0	1170	2.5	97.6
5–6	19	1.2	99.2	643	1.5	99.1
Evening	14	.8	100.0	437	.9	100.0
Total	1560	100.0		47075	100.0	

Table 117. Percentage Distribution of Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
Laboratory Rooms

Hour of Day	Total Number at Each Hour	Room-Period Use Percentage of Total At Each Hour	Room-Period Use Percentage of Total Cumulative	Total Number at Each Hour	Student-Station-Period Use Percentage of Total At Each Hour	Student-Station-Period Use Percentage of Total Cumulative
8–9 a.m.	41	4.3	4.3	650	3.7	3.7
9–10	87	9.1	13.4	1431	8.1	11.8
10–11	117	12.3	25.7	2249	12.8	24.6
11–12	110	11.5	37.2	2115	12.1	36.7
12–1 p.m.	46	4.8	42.0	931	5.3	42.0
1–2	85	8.9	50.9	1433	8.2	50.2
2–3	169	17.7	68.6	3026	17.3	67.5
3–4	164	17.3	85.9	3079	17.6	85.1
4–5	98	10.3	96.2	1780	10.2	95.3
5–6	22	2.3	98.5	528	3.0	98.3
Evening	14	1.5	100.0	289	1.7	100.0
Total	953	100.0		17511	100.0	

Table 118. Percentage Distribution of Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
Seminar and Conference Rooms

Hour of Day	Total Number at Each Hour	Room-Period Use Percentage of Total At Each Hour	Room-Period Use Percentage of Total Cumulative	Total Number at Each Hour	Student-Station-Period Use Percentage of Total At Each Hour	Student-Station-Period Use Percentage of Total Cumulative
8–9 a.m.	0	0.0	0.0	0	0.0	0.0
9–10	10	20.0	20.0	122	22.1	22.1
10–11	6	12.0	32.0	116	21.0	43.1
11–12	12	24.0	56.0	135	24.4	67.5
12–1 p.m.	0	0.0	56.0	0	0.0	67.5
1–2	3	6.0	62.0	11	2.0	69.5
2–3	7	14.0	76.0	70	12.7	82.2
3–4	5	10.0	86.0	51	9.2	91.4
4–5	3	6.0	92.0	26	4.7	96.1
5–6	1	2.0	94.0	11	2.0	98.1
Evening	3	6.0	100.0	9	1.9	100.0
Total	50	100.0		551	100.0	

Table 119. Percentage Distribution of Instructional Room Utilization Per Week by Hours of the Day
Semester I, 1958-59
All Rooms Combined

Hour of Day	Total Number at Each Hour	Room-Period Use Percentage of Total At Each Hour	Room-Period Use Percentage of Total Cumulative	Total Number at Each Hour	Student-Station-Period Use Percentage of Total At Each Hour	Student-Station-Period Use Percentage of Total Cumulative
8–9 a.m.	326	12.7	12.7	8771	13.4	13.4
9–10	442	17.2	29.9	11956	18.3	31.7
10–11	416	16.2	46.1	11311	17.4	49.1
11–12	354	13.8	59.9	10409	15.9	65.0
12–1 p.m.	86	3.4	63.3	2539	3.9	68.9
1–2	188	7.3	70.6	4328	6.7	75.6
2–3	287	11.3	81.9	6074	9.3	84.9
3–4	241	9.4	91.3	4856	7.4	92.3
4–5	150	5.9	97.2	2976	4.6	96.9
5–6	42	1.6	98.8	1182	1.9	98.8
Evening	31	1.2	100.0	735	1.2	100.0
Total	2563	100.0		65137	100.0	

Table 120. Variation by Period of the Day in Use of udent Stations

Period of the Day	Number of Student Stations Used Per Week Lecture	Laboratory	Seminar	All
8–9 a.m.	8121	650	0	8771
9–10	*10403*	1431	122	*11956*
10–11	8946	2249	116	11311
11–12	8159	2115	*135*	10409
12–1 p.m.	1608	931	0	2539
1–2	2884	1433	11	4328
2–3	2978	3026	70	6074
3–4	1726	*3079*	51	4856
4–5	1170	1780	26	2976
5–6	643	528	11	1182
Evening	437	289	9	735

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Period of the Day	Lecture	Laboratory	Seminar	All
8–9 a.m.	78.0	21.1	0.0	73.3
9–10	*100.0*	46.5	90.4	*100.0*
10–11	85.9	73.1	85.9	94.5
11–12	78.4	68.7	*100.0*	87.0
12–1 p.m.	15.5	30.3	0.0	21.2
1–2	27.7	46.6	8.1	36.2
2–3	28.6	98.3	51.8	50.8
3–4	16.6	*100.0*	37.8	40.6
4–5	11.2	57.8	19.3	24.9
5–6	6.2	17.2	8.1	9.9
Evening	4.1	9.4	6.7	6.1

* Highest value for the day = 100.0

Utilization by Room Capacity — Tables 121 to 126, inclusive, show the utilization of instructional space as a function of room capacity. Tables 127 and 128 show the corresponding utilization for all rooms combined. It can be noted, for example, that rooms with 61-80 student stations are used three times as much as those with 11-20.

Comparison of Tables 127 and 128 shows that student stations are used less frequently on the average than are the rooms. For all rooms combined, an average of 50 percent of the stations were occupied during the time the rooms were in use (Table 104). The actual relationship between class size and room capacity is shown for each type of room in Tables 129, 130, and 131, and for all rooms combined in Table 132. These tables are in effect an analysis of "fit" or compatibility. The entries above the heavy black line show the number of class period meetings in which the class size was equal to or larger than the number of student stations found in the room. Entries below the line show the extent to which class size was smaller than the seating capacity of the room.

The number 96 which has been underscored in Table 129 shows that 96 class meetings per week for classes of 11-20 students met in rooms with capacity ranging from 41-50 students. The numbers above and below the *96* show the number of class meetings per week for classes of the same size in rooms of the capacity listed. Referring to Table 129 again, the percentage figures indicate, for example, that 22.1 percent of lecture class periods were for classes with 11-20 students. Similarly, 17.8 percent of all lecture class meetings per week were held in rooms of 41-50 student capacity. The cumulative percentage figures show that 85 percent of all class meetings were with classes having fewer than 50 students, and that 63 percent of lecture class meetings were in rooms with capacities of less than 60 students.

Utilization by Room Area — Table 133 is a summary of square feet of assignable floor space per 100 hours of student-station occupancy. Institutions vary in the average amount of floor space allotted per student-station occupancy for the various kinds of instructional rooms. This variation will be related to the effectiveness in the placement of equipment and stations and in the design of the room. This type of analysis has not yet been widely used and comparative data may be difficult to locate.

Table 121. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
Lecture and Recitation Rooms
Room-Period Use

Number of Student Stations in Room	Number of Rooms of Each Size	Total Room Periods Used for Week	Average Room-Period Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods
1-10	0	0	0.0	0.0
11-20	1	3	3.0	6.8
21-30	8	149	18.6	42.3
31-40	14	249	17.7	40.3
41-50	14	278	19.9	45.1
51-60	14	305	21.7	49.4
61-80	15	333	21.9	49.9
81-100	3	49	16.3	37.1
101-150	5	110	22.0	50.0
151-200	3	60	20.0	45.4
201-250	0	0	0.0	0.0
251 and over	1	24	24.0	54.5
Total	78	1560		

Table 122. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
Lecture and Recitation Rooms
Student-Station-Period Use

Number of Student Stations in Room	Total Student Stations in Each Group of Rooms	Total Student Station Periods Occupied Per Week	Average Student Hours Per Week Per Station	Percentage of Possible Utilization Based on Week of 44 Periods	Percentage of Station Use When Room in Use
1-10	0	0	0.0	0.0	0.0
11-20	20	12	.6	1.3	20.0
21-30	207	2183	10.5	24.0	49.7
31-40	503	5184	10.3	23.4	62.7
41-50	638	6223	9.8	22.2	50.0
51-60	712	6515	9.1	20.8	42.0
61-80	1180	12411	10.5	23.8	49.7
81-100	264	2495	9.4	21.5	57.4
101-150	612	5972	9.8	22.2	43.2
151-200	523	3606	6.9	15.7	36.0
201-250	0	0	0.0	0.0	0.0
251 and over	356	2474	6.9	15.8	28.9
Total	5015	47075			

Table 123. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
Laboratory Rooms
Room-Period Use

Number of Student Stations in Room	Number of Rooms of Each Size	Total Room Periods Used for Week	Average Room-Period Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods
1-10	11	16	1.2	2.8
11-20	38	359	8.9	20.3
21-30	19	288	15.2	34.4
31-40	12	151	12.6	28.6
41-50	2	45	22.5	51.1
51-60	1	33	33.0	75.0
61-80	2	61	30.5	69.3
Total	85	953		

Table 124. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
Laboratory Rooms
Student-Station-Period Use

Number of Student Stations in Room	Total Student Stations in Each Group of Rooms	Total Student Station Periods Occupied Per Week	Average Student Hours Per Week Per Station	Percentage of Possible Utilization Based on Week of 44 Periods	Percentage of Station Use When Room in Use
1-10	74	54	0.7	1.5	39.1
11-20	591	4631	7.8	17.8	80.9
21-30	493	4735	9.6	21.8	63.7
31-40	422	3033	7.2	16.3	58.4
41-50	87	1441	16.7	37.6	75.8
51-60	56	1719	30.7	69.8	93.0
61-80	145	1898	13.1	29.7	43.6
Total	1868	17511			

Table 125. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
Seminar and Conference Rooms
Room-Period Use

Number of Student Stations in Room	Number of Rooms of Each Size	Total Room Periods Used for Week	Average Room-Period Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods
1-10	1	0	0.0	0.0
11-20	6	32	5.3	12.1
21-30	1	18	18.0	40.9
Total	8	50		

Table 126. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
Seminar and Conference Rooms
Student-Station-Period Use

Number of Student Stations in Room	Total Student Stations in Each Group of Rooms	Total Student Station Periods Occupied Per Week	Average Student Hours Per Week Per Station	Percentage of Possible Utilization Based on Week of 44 Periods	Percentage of Station Use When Room in Use
1-10	10	0	0.0	0.0	0.0
11-20	90	255	28.3	6.4	48.7
21-30	30	296	9.9	22.4	54.8
Total	130	551			

Table 127. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
All Rooms Combined
Room-Period Use

Number of Student Stations in Room	Number of Rooms of Each Size	Total Room Periods Used for Week	Average Room-Period Use for Week	Percentage of Possible Utilization Based on Week of 44 Periods
1-10	12	16	1.3	2.9
11-20	45	394	8.8	20.0
21-30	28	455	16.2	36.8
31-40	26	400	15.4	35.0
41-50	16	323	20.2	45.9
51-60	15	338	22.5	51.1
61-80	17	394	23.2	52.7
81-100	3	49	16.3	37.1
101-150	5	110	22.0	50.0
151-200	3	60	20.0	45.4
201-250	0	0	0.0	0.0
251 and over	1	24	24.0	54.5
Total	171	2563		

Table 128. Utilization of Instructional Space in Rooms of Each Size
Semester I, 1958-59
All Rooms Combined
Student-Station-Period Use

Number of Student Stations in Room	Total Student Stations in Each Group of Rooms	Total Student Station Periods Occupied Per Week	Average Student Hours Per Week Per Station	Percentage of Possible Utilization Based on Week of 44 Periods
1-10	84	54	.6	1.3
11-20	701	4898	7.0	15.9
21-30	730	7214	9.9	22.5
31-40	925	8217	8.9	20.2
41-50	725	7664	10.6	24.1
51-60	768	8234	10.7	24.3
61-80	1325	14309	10.8	24.5
81-100	264	2495	9.4	21.5
101-150	612	5972	9.8	22.2
151-200	523	3606	6.9	15.7
201-250	0	0	0.0	0.0
251 and over	356	2474	6.9	15.8
Total	7013	65137		

Table 129. Class Size in Relation to Room Capacity
Semester I, 1958-59

Lecture and Recitation Rooms

Room Capacity	Number of Class Periods Per Week for Classes of Each Size											Total	Percent	Cumulative Percent
	1–10	11–20	21–30	31–40	41–50	51–60	61–80	81–100	101–150	151–200	201–250			
1–10	0											0	0.0	0.0
11–20	3	0										3	.2	.2
21–30	56	58	35									149	9.6	9.8
31–40	64	68	68	36	10	3						249	16.0	25.8
41–50	36	96	93	34	12	7						278	17.8	43.6
51–60	36	55	149	33	26	3	3					305	19.5	63.1
61–80	32	56	68	67	34	35	41					333	21.3	84.4
81–100	0	3	3	2	18	11	9	3				49	3.1	87.5
101–150	2	5	0	20	21	25	25	8	4			110	7.2	94.7
151–200	0	3	0	6	18	21	6	0	3	0	3	60	3.8	98.5
201–250	0	0	0	0	0	0	0	0	0	0	0	0	0.0	98.5
251 and over	0	0	0	2	0	0	10	6	1	4	1	24	1.5	100.0
Total	229	344	416	200	139	105	94	17	8	4	4	1560		
Percent	14.7	22.1	26.7	12.8	8.9	6.7	6.1	1.1	.5	.2	.2		100.0	
Cumulative Percent	14.7	36.8	63.5	76.3	85.2	91.9	98.0	99.1	99.6	99.8	100.0			

Table 130. Class Size in Relation to Room Capacity
Semester I, 1958-59

Laboratory Rooms

Room Capacity	Number of Class Periods Per Week for Classes of Each Size 1–10	11–20	21–30	31–40	41–50	51–60	61–80	81–100	101–150	151–200	201–250	Total	Percent	Cumulative Percent
1–10	16											16	1.7	1.7
11–20	108	226	24	1								359	37.6	39.3
21–30	60	149	79	0								288	30.2	69.5
31–40	28	53	52	17	0	0	1					151	15.8	85.3
41–50	4	10	0	26	4	0	1					45	4.8	90.1
51–60	0	0	0	3	9	21	0					33	3.5	93.6
61–80	0	11	23	16	5	3	3					61	6.4	100.0
Total	216	449	178	63	18	24	5	0	0	0	0	953		
Percent	22.7	47.1	18.7	6.6	1.9	2.5	.5	0	0	0	0		100.0	
Cumulative Percent	22.7	69.8	88.5	95.1	97.0	99.5	100.0							

Table 131. Class Size in Relation to Room Capacity
Semester I, 1958-59

Seminar and Conference Rooms

Room Capacity	Number of Class Periods Per Week 1–10	11–20	21–30	Total	Percent	Cumulative Percent
1–10	0			0	0.0	0.0
11–20	24	8	0	32	64.0	64.0
21–30	2	13	3	18	36.0	100.0
Total	26	21	3	50		
Percent	52.0	42.0	6.0		100.0	
Cumulative Percent	52.0	94.0	100.0			

Table 132. Class Size in Relation to Room Capacity
Semester I, 1958-59

All Rooms Combined

Room Capacity	Number of Class Periods Per Week for Classes of Each Size 1–10	11–20	21–30	31–40	41–50	51–60	61–80	81–100	101–150	151–200	201–250	Total	Percent	Cumulative Percent
1–10	16											16	.6	.6
11–20	135	234	24	1								394	15.4	16.0
21–30	118	220	117	0								455	17.7	33.7
31–40	92	121	120	53	10	3	1					400	15.6	49.3
41–50	40	106	93	60	16	7	1					323	12.6	61.9
51–60	36	55	149	36	35	24	3					338	13.2	75.1
61–80	32	67	91	83	39	38	44					394	15.4	90.5
81–100	0	3	3	2	18	11	9	3				49	1.9	92.4
101–150	2	5	0	20	21	25	25	8	4			110	4.3	96.7
151–200	0	3	0	6	18	21	6	0	3	0	3	60	2.3	99.0
201–250	0	0	0	0	0	0	0	0	0	0	0	0	0.0	99.0
251 and over	0	0	0	2	0	0	10	6	1	4	1	24	1.0	100.0
Total	471	814	597	263	157	129	99	17	8	4	4	2563		
Percent	18.4	31.8	23.3	10.3	6.1	5.0	3.9	.7	.3	.1	.1		100.0	
Cumulative Percent	18.4	50.2	73.5	83.8	89.9	94.9	98.8	99.5	99.8	99.9	100.0			

Table 133. Summary of Square Feet of Assignable Floor Space Per 100 Hours of Student Occupancy

Kinds of Instructional Rooms	Number of Rooms	Assignable Square Feet of Floor Space	Hours of Student Occupancy	Square Feet of Floor Space Per 100 Hours of Student Occupancy
Lecture	78	65394	1560	4191.9
Laboratory	85	106218	953	11145.6
Seminar	8	2472	50	4944.0
All Rooms Combined	171	174084	2563	6792.2

Table 134. A Comparison of Room Utilization at the University of New Hampshire With That of 90 Other Institutions

	Average Number of Periods Rooms Used Per Week		Average Number of Student Hours Per Station Per Week		Percentage Student Stations Used When Rooms in Use	
Percentile	Lecture	Laboratory	Lecture	Laboratory	Lecture	Laboratory
99	42.0	33.0	25.0	36.0	89.0	109.0
90	28.5	25.0	17.8	19.3	73.5	82.0
80	25.9	21.4	15.1	16.2	65.5	75.5
70	23.2	19.8	13.5	13.9	61.5	70.5
60	21.8	18.5	12.1	12.0	57.2	67.2
						←
50	20.4	17.0	11.1	10.9	53.3	63.0
	→					
40	19.4	15.2	9.8	9.8	50.0	58.5
			→	←		
30	18.0	13.0	9.0	8.2	46.3	55.5
		←			→	
20	16.0	10.0	8.5	6.4	43.5	52.5
10	14.0	8.2	6.6	4.2	40.8	44.5
1	7.0	15.9	3.0	1.0	28.0	39.0

Comments

The data presented in this report must be interpreted with caution and discretion. As is the case with the curriculum survey, the information is best suited to indicate trends and to suggest areas for closer study. The absence of normative data for many of the factors considered makes the interpretation even more difficult. The comments made in this section are intended as stimuli for further discussion and not necessarily as recommendations.

Comparisons with Other Institutions — There are no established or generally accepted norms for space utilization at this time. Other institutions are making studies similar to ours, and comparative data will gradually become available. Russell and Doi have given some utilization scores based upon reports from about 90 institutions. Since these figures were based upon a 1953-1955 survey, they are somewhat out of date. They do, however, give a rough indication of utilization and are shown in Table 134. The percentile ranks shown are interpreted, for example, as follows: 99 percent of the institutions use their lecture rooms on an average less than 42.0 periods per week; in 60 percent of the institutions, student hours per station per week in laboratories were less than 12.0; and in 10 percent of the institutions less than 40.8 percent of the student stations in lecture rooms were occupied while rooms were in use. To put it another way, a lecture score of 23.2 periods per week would indicate average utilization at a higher level than 70 percent of the other institutions. The arrows indicate the position of the University of New Hampshire in each category.

In general, these data indicate that we do not compare very favorably with the other 90 institutions. Although generally accepted optimum levels for space utilization are not available, a thorough survey of our position seems indicated. The data certainly suggest that the University can make greater use of its facilities. To do so in the face of expected increased enrollments will help make possible the increase in faculty salary level which will be needed to staff the University adequately. Resources should not be invested in construction, operation, and maintenance unless demonstrably required.

To increase the efficiency of operation will require the cooperation of faculty, staff, and administration. The administration must accept greater responsibility for effective scheduling, paying particular attention to the possibility of scheduling by computer techniques. The number of course offerings should be reduced where possible. The faculty must be willing to substitute an increased salary level for such academic perquisites as the 9 o'clock class or the convenient lecture room.

Improvement of Room Utilization — A survey of the data on the use of instructional space given in the preceding section of this report suggests several approaches to the attainment of fuller utilization. Four of these will be discussed here, but these are by no means the only possible approaches.

(1) *Changes in Room and Building Utilization* — As has been shown in Tables 101-103, there is wide variation in the use of instructional rooms. There is considerable variation within a building as well as between buildings. As an example, DeMeritt 209 and 302 have approximately the same number of student stations. One was used for 7 periods per week, and the other for 42. Kingsbury 133 and 303 have the same number of student stations. One was used twice as much as the other in terms of room periods, and twelve times as much in terms of student station periods. A similar variation occurs in the instructional use of different buildings, as shown in Table 106.

In Murkland Hall, for example, the utilization in terms of student hours per station varies from 4.0 to 20.1, with an average of 10.9. If the utilization of all rooms in Murkland could be increased to a value comparable to that for Murkland 6 (20 student hours per station per week), the number of students accommodated in this building could be increased from approximately 830 to 1,600.

There should be an attempt in scheduling classes to adjust usage throughout the campus so that a more uniform, and presumably higher, rate of utilization will be attained. This may necessitate holding classes in buildings other than those in which faculty members have their offices. It may also necessitate a change in the proprietary attitude of departments, which may sometimes assume unofficial control of classrooms.

(2) *Changes in Weekly Schedules* — Tables 107-111 have shown the data for room utilization as a function of the day of the week. The use of instructional facilities is unevenly distributed throughout the days of the week. Room-period use varies from a high 3.3 on Wednesday to 0.7 on Saturday.

A better distribution of instructional load should be possible. It should be possible to schedule special instructional activities such as military drill and instruction, or large group activities, in such a way that fuller utilization of instructional space during the week is not precluded.

If the student-station-period use on Monday were to be extended to the remaining days of the week, the total number of student station periods per week would be increased from 65,137 to 77,033, an increase of 18 percent. This increase would make it possible to accommodate approximately 700 more students. Such a distribution is undoubtedly impractical, but it is an indication of what might be done by a more uniform scheduling during the week.

(3) *Changes in Daily Schedules* — Tables 112-120 have shown the variation in instructional room utilization as a function of the hour of the day. It has been shown that the use of instructional facilities was heaviest during the morning hours. This is particularly true of lecture classes. Student station use during the 9-10 a.m. class period averaged 1.7 student hours per station per week. The corresponding figure for the 4-5 p.m. period was 0.4.

A more uniform distribution of instructional load throughout the day is certainly indicated. Better distribution of laboratory and lecture classes should be made. A reference in the Russell and Doi manual suggests an article by Peter Masiko in the May, 1956 issue of *College and University Business* which discusses a pattern of class scheduling that permits an almost complete utilization of room periods.

During the 9-10 a.m. peak period the number of student stations occupied per week was 11,956. If this rate of utilization were extended to the eight periods during the day, a total number of 95,648 student stations would be used per week. This increase of 30,511 student stations, 47 percent, is roughly the equivalent of 1,800 students. Such a complete redistribution cannot be followed explicitly, but it is an indication of what a partial reorganization might do.

(4) *Changes in Class Size — Room Capacity Relationships* — Tables 121-132 have shown the utilization of instructional space as a function of room capacity. For the University as a whole, approximately 50 percent of the student stations are occupied when rooms are actually in use.

A better matching of class size to room size would permit considerable increase in student capacity. Complete matching of room and class size is obviously impossible. The utilization of existing space and the planning of future space should consider carefully this problem.

Prediction and Planning — This study does not purport to determine the extent to which instructional space should be used. It can, however, be used to suggest ways in which the efficiency of utilization of instruction space might be improved. The data in this survey were based upon the instructional space available during 1958-59. The subsequent addition of the Spaulding Life Science Building, the Paul Creative Arts Center, and remodeled Hamilton Smith Hall has modified the picture. Since the net effect has been to increase space, it is probable that the current rate of utilization is even lower than that for the survey period.

If class size is to be increased, there will probably be a need for lecture rooms of certain sizes. There will be a need for specialized laboratories, although much could probably be done to improve the teaching methods now used. If the graduate program expands still further, the need for research space will be greater. Office space will be needed, and there will be an increased demand for peripheral services. A better distribution of class schedules, however, can improve the use of these latter services. Library demand, for example, is currently very light during the morning hours when lecture classes predominate.

The prediction of future needs for instructional space is difficult. Given certain assumptions it is possible to obtain figures which may serve as a guide. These calculations can be related to a prospective assumed enrollment or to a more efficient utilization of present facilities or both.

If the assumption is made that the present utilization rate is maintained, Table 135 shows the additional rooms needed to accommodate various numbers of full-time-equivalent students. This table is based upon the spatial parameters cited in the table, which are those currently applicable.

If the percentile rank of the University in terms of student hours per station per week could be raised from approximately 40 to 60 or 80, the picture would change considerably. Table 136 shows the effect of a change in percentile rank, corresponding to an increased use of student hours per station per week, on the number of full-time-equivalent students, assuming no change in the rooms and student stations currently available. The University should look to the efficiency of its utilization of space.

Table 135. Projected Room Requirements With Present Rate of Utilization*

Full-Time-Equivalent Students	Square Feet Required	Rooms Required	Additional Rooms Needed
3800	171000	171	0
4500	202000	202	31
5000	225000	225	54
6000	270000	270	99
7000	315000	315	144

* Relationships and constant factors used are as follows: 3800 full-time-equivalent students; 1000 square feet per room; 1.8 student stations per student; 24 square feet per student station; 10 student hours per station; 45 square feet per student.

Table 136. Projected Student Capacity With Improved Utilization of Present Facilities*

Percentile Rank	Student Hours Per Station Per Week	Student Stations Per Student	Square Feet Per Student	Full-Time-Equivalent Students
50	11	1.6	39	4400
60	12	1.5	36	4750
70	13.5	1.3	32	5350
80	15	1.2	29	5900
90	18	1.0	24	7100

* The constant factors used are as follows: 171 rooms with 171000 square feet; 7100 student stations; 24 square feet per student station.

PART FOUR

Chapter 8. General Summary of Recommendations

Course Offerings, Duplication, and Proliferation

1. Syllabi of all courses offered at the University should be prepared by the instructors concerned. These should be filed by the department chairmen with the deans of the respective colleges in which the courses are offered. The chairmen and the deans should be responsible for controlling duplication within and between their departments.

2. The syllabi should be made available between colleges for purchase by students.

3. New course syllabi should be written every five years and every time a course is materially revised or a new one is initiated.

4. Closer cooperation between departments in offering upper level courses should be effected.

5. Classes with low enrollment should be offered on an alternate-year basis.

University-wide Course Requirements

6. All students of the University of New Hampshire should complete the following requirements (exclusive of R.O.T.C. and physical education requirements):

   1. English 1-2. 6 credits
   2. A four-year independent reading program. 5½ credits
   3. *Either* of the following:
      A. A four-year distribution requirement. 24 credits
      B. A four-year core course requirement. 24 credits

7. A Department of Physical Activity should be constituted in place of the present Men's and Women's Departments to supervise physical education for both men and women. Intercollegiate athletics should be operated by a separate department.

8. The general physical education requirement should be changed to two years for both men and women.

Remedial Courses

9. Remedial courses in English and Mathematics should be given in the summer (prior to entrance into the University) when possible. Tests indicating the level of achievement in these two areas should be given to prospective freshmen in the spring prior to entrance. If for special reasons the student is not able to attend summer school or his deficiencies are not recognized, he should be required to take the remedial work in the regular evening University Extension program.

Independent Study

10. The administration should support faculty experimentation with various independent study programs by providing the facilities and encouragement.

Larger Classes

11. The University should introduce extra-large lectures (150 or more students) for introductory courses in subjects that lend themselves to exciting lecture treatment. Where a faculty member assumes responsibility for large classes, he should get extra credit for such an assignment. He should also get assistance in the form of graders, discussion leaders, clerical helpers, and mechanical teaching aids if he needs these.

Small Classes

12. In dealing with small classes, the University should utilize three criteria: (1) method of instruction, (2) course level, and (3) course relationship to program.

13. Imposition of a rigid minimum on class size should be avoided. It is possible, however, that in terms of courses of the same type, enrollment minima might be established, but only if a desired program is not thereby irreparably harmed. Departments now imposing low ceilings of 30 or less on sections of courses where lecture or lecture-discussion methods are used should furnish proof to the dean of their college that such ceilings cannot be raised or sections merged.

14. Undergraduate programs which are chronically low in enrollment should be reassessed.

15. The number of graduate courses should be kept in balance with the rest of a department's course offerings.

16. The productivity index of departments might well serve as a clue to which programs might be reassessed.

17. A special committee consisting of the deans of the three colleges, the President, and one elected non-administrative faculty member from each college should review departmental reappraisals of programs and courses with a view toward either abandonment of courses or programs or mergers of courses, programs, or departments.

The Role of the Department in Policy Decisions

18. The President and deans should make more use of the three-year proviso to replace chairmen.

19. The faculty generally, but particularly faculty in departments which are dissatisfied, should express their desire for replacement or rotation of chairmen to their

deans. Departmental staff should collectively develop a general policy on the replacement, rotation, and retention of the chairman in addition to recommending individuals for the post.

20. The faculty and the University and college administrations should revitalize existing instruments for communication, discussion, and coordination whether at the University, college, or divisional level.

21. The President should at least once or twice a semester meet informally with department chairmen as a group to discuss any topics of common interest.

22. Departmental chairmen should meet periodically to discuss common problems without the President or deans in attendance.

23. The colleges should invite representatives of the other colleges to attend and to participate in their formal meetings.

24. The departments should invite representatives of closely associated departments to meetings in which they discuss basic questions which clearly affect these other departments.

25. Departments and colleges should invite outside consultants to help appraise their programs and organization periodically or at least when major problems arise.

Teaching Aids

26. Departments should survey the usefulness of technical devices and consider their procurement or use in instructional programs. The University should provide funds to enable departments to consult with outside experts in this matter.

27. The University should broaden the facilities of the Audio-Visual Center to make it a clearing house for all mechanical devices which would serve the needs of more than one department.

28. The University should adopt a definitive policy with regard to the use of television for regular instructional purposes.

29. The use of WENH-TV for University classroom purposes should be confined to extension teaching. The use of television for teaching regular courses given for resident credit should be restricted to a closed-circuit system.

Laboratories

30. Departments should reappraise the objective of laboratory work in each course now requiring such work to determine whether or not it is essential *in toto* or in part.

31. Departments should replace laboratory work, wherever possible, by such devices as films, television, video tapes, classroom demonstrations, and discussions.

32. In departments where laboratory work is essential, ways and means of saving faculty time should be considered.

Library

33. The University Library Committee should be transformed from a committee of the administration into a Standing Committee of the University Senate. In this capacity, the committee would report to the Senate annually with respect to its work.

Advisory Structure

34. A wider faculty participation in departmental advising should be instituted. The student should be assigned a permanent advisor upon declaration of his major.

35. Recent trends toward giving the advisor more discretion and responsibility in dealing with student problems should be continued.

Academic Year

36. The University should consider the adoption of a three-quarter system in which student loads could be limited to four courses and the equivalent of 12 semester credits for each quarter.

Faculty Activities

37. The faculty should re-examine its correction procedures to determine whether they are in the best interests of the University. Departments should use every possible means to provide assistance to the faculty. The University should reappraise hourly wage rates paid to student graders and lay readers and stipends paid to graduate assistants.

38. The effort to eliminate the advisor's responsibility for clerical aspects of registration should be continued.

39. Faculty members should be assigned to not more than two committees at the college or University level, except for those assignments which are normally associated with administrative positions.

40. The function, purpose, and the *modus operandi* of all University committees should be reviewed annually by the Faculty Council. Other committees should be reviewed annually by their presiding officers.

41. At least one day per week of a faculty member's time should be freed for research or professional development.

42. Department chairmen should plan assignments based on the liberal view expressed in the Faculty Handbook. Less emphasis should be placed on credit hours and more consideration should be given to the following:

1) Ability and experience of the instructor.
2) Level and nature of the course.
3) The instructor's previous experience in the course.
4) Availability of graduate and grading assistants.
5) Number of multiple sections.
6) Number of students in each section.
7) All other duties performed for the department, college and university.
8) The instructor's need for professional development.

43. The present Instructor's Report Form should be modified to include an estimate of each part of the instructional and non-instructional load in terms of hours per week.

44. All graduate instruction should be considered and counted as part of the instructor's load.

45. Consideration should be given to the reinstatement of the policy of announcing assignments for Standing Committees of both the Senate and the Administration simultaneously with the seating of the newly elected Senate in June.

46. The instructor's signature should be required on the Instructor's Report Form. It should be announced as policy that the instructor is to be consulted in regard to his assignments.

47. A Committee for Staff Services should be formed.

Curricular and Time-Space Utilization Problems

48. The University should maintain an active file of data on curricular and time-space utilization matters as a continuing activity.

49. Undergraduate major requirements should be more clearly defined and course selection should be made less permissive. The procedure used by some departments of expressing specific requirements of courses numbered above 50 should be followed more generally.

50. A numbering system which more clearly states the academic year level of a particular course should be adopted. Regulations should be established concerning the number of courses of each type which would be acceptable for graduation.

51. Course listings should be reviewed very carefully in connection with an overall attempt to reduce the number of courses offered.

52. The University should give serious attention to the problem of improving time-space utilization, as outlined in Chapter 7.

An Overall Recommendation

In addition to the above recommendations, the Committee offers the following overall recommendation.

53. Departments should prepare a master plan for all aspects of their development for the next decade. These plans should contemplate departmental programs, courses, faculty and staff needs, and time and space utilization of varying administrative arrangements for instruction under the assumption that the expected enrollment increases and teacher shortages will occur.

These departmental plans would be coordinated by the deans into college plans, and these, in turn, by the President and deans into a University plan. The University plan should include consideration of non-academic matters, such as finances, admissions, housing, and services.

The department plans should be filed with the deans no later than January 1, 1962. It is hoped that college plans and an overall University plan would be ready for implementation well before the drastic enrollment increases scheduled to begin in 1964.

APPENDIX 1

Questionnaire - Faculty Interview on Curricular Problems

These questions are intended to help CAPTM ascertain what is the status of the UNH curriculum presently and to procure opinions and counsel on what kinds of changes might be necessary to cope with future enrollment problems.

*1. (a) For what types of jobs does your department generally prepare a student?

Job	*% of Total*

(b) What proportion of your students are placed within the state?

(c) What are the future prospects for employment?

*2. (a) Do other departments prepare students for these same fields of endeavor?

(b) If so, which ones?

*3. What are your principal service courses?

Course	*% non-majors*	*Principal department served*

*4. (a) Do you think that prerequisites are sometimes used to:

(1) Increase student numbers? or

(2) Reduce enrollments in advanced courses?

(b) Would it be desirable to eliminate any current prerequisites in your department?

*5. What are your major scheduling problems (labs, R.T.C., prerequisites)?

6. (a) Do you know of any course content duplications in your own department?

(b) How are they justified?

(c) Has your department discussed the need for more intra-departmental integration?

7. Have you encountered any course duplication outside your department which is possibly not justifiable?

8. (a) Does your department make an effort to control the number of courses it offers?

(b) If so, how?

9. (a) Do you believe that more of the University's present offerings might be given in alternate years than is the case presently?

(b) Would you be willing to put your advanced courses on an alternate year basis?

10. What is the procedure for making changes in your department curriculum? Should it be different?

11. Assume the enrollment in your department courses doubles in the near future with no increase in permanent staff, what should your department do?

12. (a) Do you currently limit class (or lab) size in your department?

(b) If so, what determines limit?

(c) Given the physical facilities could you materially increase your class size for certain types of work?

(d) If so, what types?

(e) If so, what size?

13. (a) Do you believe the current Thursday afternoon scheduling for R.O.T.C. drill should remain fixed?

(b) If not, what change would you suggest?

14. (a) Do you feel there should be any changes in general physical education requirements? (If so, what?)

(b) Do you believe that college credit should be offered for this work?

15. (a) Do you believe that the UNH has a responsibility to provide remedial courses?

(b) If so, in what areas?

(c) Should this work be provided during Summer Session, Extension Service, in regularly scheduled courses, or otherwise?

(d) Should college credit be given for these courses?

16. (a) How essential is laboratory work to your department?

(b) If you offer laboratory work in your department, is the major objective to teach basic principles or to develop techniques?

17. How do you feel about the present credit hour requirements for graduation in your college?

18. (a) How do you feel about the current preponderance of 3 credit courses?

(b) Would you prefer some 2½ hour sessions for some 3 credit courses?

---

* Chairmen only.

19. Do you think that a shift to the trimester or quarter (either the three-quarter or four-quarter) system would solve some of UNH's problems in:

   (a) Use of physical facilities?

   (b) Use of faculty time?

20. Do you feel that students, in general, should do more independent work? Would this be practical in your department?

21. How do you feel about credit by examination as a way of accelerating student work?

22. (a) Do you believe that there are (or could be) some courses that all students should be required to take?

   (b) In what areas?

   (c) What part of a students' total requirements should these courses account for?

   (d) Should these requirements be met

      (1) by means of existing courses, some of which are in part geared to providing the foundation for advanced work in a given subject?

      or

      (2) by means of courses of a broader nature, designed specifically to provide an appreciation of the area as a whole?

23. (a) Independently of your answer to the previous ques[illegible]n, do you believe that all students who wish to become (scientists, teachers, etc.) should take a standardized curriculum for one or more years (composed of some specific courses and group options) regardless of the particular subject matter field in which they will specialize?

   (b) Assuming that more than one such standard curriculum is desirable would it be best to set them up according to:

      (1) General subject matter area (social sciences, biological sciences, etc.)?

      or

      (2) The type of career the student is interested in (scientific, general, professional, etc.)?

APPENDIX 2

Faculty Activities Report

Committee on Academic Programs and Teaching Methods

UNIVERSITY OF NEW HAMPSHIRE

NAME ______________________ RANK ______________________ DEPT. ______________________

To be filled out for Sem. II of the *past* academic year, 1958-59. For each course list *each* recitation, *each* lecture, *each* laboratory, and/or *each* conference section in a separate column. In courses which have two or more of these instructional divisions, break down the total credits and list your best estimate of the credits assignable to the individual parts. Do not include extension courses.

You are asked below to estimate the hours/week you actually spent on various tasks (this may differ from assigned time). The hours asked for are clock hours. The hours/week should be based on a 16-week semester and estimated to the nearest half hour.

INSTRUCTIONAL ACTIVITIES

Department and Course No.								
Section letter								
Indicate whether rec., lect., lab., or conf.								
Credits								
No. of students	Undergraduate							
	Graduate							
Your contact hours/week								
Your preparation hours/week								
Number of times you have taught course in the last five years								
Year you made last major revision of the course								
Estimated hours/week you spent correcting (average on 16-week basis)	a) Exams							
	b) Homework							
	c) Term paper, theses							
	d) Lab. reports							
Estimated hours/week you were in conference with students regarding course work								
Did you have a graduate assistant?								
Your assistant's contact hours/week								
Estimated hours/week your assistant spent grading for you								
Estimated hours/week graders (other than graduate assistants) spent grading for you								
Could you have made more use of graders?								
If so, were you limited by	a) lack of qualified graders							
	b) lack of funds							
	c) other (explain overleaf)							

Percentage of time assigned to teaching ______ research ______ ( ) ______

ADVISORY DUTIES

Advisor to .... Freshmen, ... Sophomores, ... Juniors, ... Seniors, ... Graduate Students.

Est. Hrs./Week advising students ....

Est. Hrs./Semester registering students ....

Est. Hrs./Week .... as advisor to the following student organizations: ....

______ ______________________________

______ ______________________________

COMMITTEE ASSIGNMENTS

List committees you were assigned to and estimate hours/week spent on each.

(Was time profitably spent?)

		Yes	?	No
1. ______________________________	______	☐	☐	☐
2. ______________________________	______	☐	☐	☐
3. ______________________________	______	☐	☐	☐

RESEARCH AND PROFESSIONAL DEVELOPMENT

No. of Hrs./Week on assigned* sponsored† research . . . . ______

No. of Hrs./Week on unassigned sponsored research . . . . ______

No. of Hrs./Week on assigned unsponsored research . . . . ______

No. of Hrs./Week on unassigned unsponsored research . . . . ______

No. of Hrs./Week for professional development (other than research) . . . . ______

---

* research for which one was employed.

† research supported by outside contract.

MISCELLANEOUS DUTIES

Other duties (excluding those engaged in for extra compensation) such as administrative, clerical, custodial, laboratory maintenance, misc. meetings, etc.

	Est. Hrs./Week
1. ______________________________	______
2. ______________________________	______
3. ______________________________	______
4. ______________________________	______
5. ______________________________	______
6. ______________________________	______

SERVICES

Estimated hours/week of secretarial time you used ....

Could you have used additional secretarial time? .... If so, how many hours/week ....

Estimated hours/week you were relieved of non-instructional duties by academic assistants ....

RECOMMENDATIONS

How might services and facilities be improved to save you time?

Other recommendations (excluding the subject of questionnaires) concerning studies by the Committee on Academic Programs and Teaching Methods.

APPENDIX 3

Results of Curriculum Questionnaire* Sent to Random Sample of Students, January, 1960

213 replies out of 350

66. On the basis of your present ideas about preparation for life, how well do you think your studies at UNH are preparing you?

87 a. Very well

117 b. Neither very well nor very badly

7 c. Very badly

1. L. A. (Male)
   a. 30
   b. 38
   c. 4

2. L. A. (Female)
   a. 31
   b. 52
   c. 3

3. Agriculture (Male)
   a. 6
   b. 8
   c. 0

4. Agriculture (Female)
   a. 2
   b. 2
   c. 0

5. Technology (Male)
   a. 17
   b. 15
   c. 0

6. Graduate (Male)
   a. 1
   b. 2
   c. 0

67. If you are taking some vocational-professional subjects and some liberal arts subjects, what do you think of the balance between them?

78 a. They are balanced in just about the right proportion

42 b. I should have had more liberal arts subjects

35 c. I should have had more vocational-professional subjects

1. L. A. (Male)
   a. 6
   b. 8
   c. 0

2. L. A. (Female)
   a. 34
   b. 12
   c. 13

3. Agriculture (Female)
   a. 3
   b. 0
   c. 0

4. Agriculture (Male)
   a. 1
   b. 2
   c. 0

5. Technology (Male)
   a. 11
   b. 11
   c. 6

6. Graduate (Male)
   a. 0
   b. 0
   c. 0

68. Which of the following arrangements do you consider most advisable for students who are taking both vocational-professional and liberal arts subjects?

7 a. All the liberal arts work should be taken first, the other work should follow later.

4 b. All the vocational-professional work should be taken first; the liberal arts work should follow later.

86 c. Liberal arts and vocational-professional work should be balanced throughout a student's college career — as much of one as the other every year.

89 d. There should be more liberal arts work the first year, but the proportion should change so that there will be more vocational-professional work the last year.

9 c. There should be more vocational-professional work the first year, but the proportion should change so that there will be more liberal arts work the last year.

1. L. A. (Male)
   a. 1
   b. 0
   c. 30
   d. 30
   e. 3

2. L. A. (Female)
   a. 7
   b. 0
   c. 36
   d. 43
   e. 2

3. Agriculture (Male)
   a. 1
   b. 0
   c. 7
   d. 4
   e. 1

4. Agriculture (Female)
   a. 0
   b. 0
   c. 2
   d. 2
   e. 0

5. Technology (Male)
   a. 3
   b. 4
   c. 9
   d. 9
   e. 3

6. Graduate (Male)
   a. 0
   b. 0
   c. 2
   d. 1
   e. 0

69. Have you had any courses in the subjects listed below?

In Art?
54 a. Yes
154 b. No

In Music?
51 a. Yes
158 b. No

In Philosophy?
27 a. Yes
182 b. No

In Poetry?
46 a. Yes
163 b. No

---

* Selected from a larger survey.

1. L. A. (Male)
   - Art?
     - a. 18
     - b. 54
   - Music?
     - a. 17
     - b. 55
   - Philosophy?
     - a. 14
     - b. 58
   - Poetry?
     - a. 18
     - b. 54
2. L. A. (Female)
   - Art?
     - a. 28
     - b. 57
   - Music?
     - a. 26
     - b. 59
   - Philosophy?
     - a. 9
     - b. 76
   - Poetry?
     - a. 22
     - b. 63
3. Agriculture (Male)
   - Art?
     - a. 0
     - b. 14
   - Music?
     - a. 1
     - b. 13
   - Philosophy?
     - a. 0
     - b. 14
   - Poetry?
     - a. 0
     - b. 14
4. Agriculture (Female)
   - Art?
     - a. 2
     - b. 1
   - Music?
     - a. 1
     - b. 2
   - Philosophy?
     - a. 0
     - b. 3
   - Poetry?
     - a. 0
     - b. 3
5. Technology (Male)
   - Art?
     - a. 5
     - b. 27
   - Music?
     - a. 5
     - b. 27
   - Philosophy?
     - a. 3
     - b. 29
   - Poetry?
     - a. 5
     - b. 27
6. Graduate (Male)
   - Art?
     - a. 1
     - b. 2
   - Music?
     - a. 1
     - b. 2
   - Philosophy?
     - a. 1
     - b. 2
   - Poetry?
     - a. 1
     - b. 2

70. If you answered "No" to any part of Question 69, do you think you have missed an important part of college?

102 a. Yes

91 b. No

1. L. A. (Male)
   - a. 32
   - b. 32
2. L. A. (Female)
   - a. 52
   - b. 27
3. Agriculture (Male)
   - a. 5
   - b. 9
4. Agriculture (Female)
   - a. 1
   - b. 3
5. Technology (Male)
   - a. 12
   - b. 18
6. Graduate (Male)
   - a. 0
   - b. 2

71. Have you encountered duplication of course content?

83 a. Yes

113 b. No

1. L. A. (Male)
   - a. 27
   - b. 45
2. L. A. (Female)
   - a. 42
   - b. 29
3. Agriculture (Male)
   - a. 4
   - b. 10
4. Agriculture (Female)
   - a. 1
   - b. 3
5. Technology (Male)
   - a. 9
   - b. 23
6. Graduate (Male)
   - a. 0
   - b. 3

72. If you answered "Yes" to Question 71, under what circumstances?

69 a. Overlapping — same material in different courses.

6 b. Same course offered by different departments.

8 c. Other

1. L. A. (Male)
   - a. 23
   - b. 3
   - c. 1
2. L. A. (Female)
   - a. 33
   - b. 2
   - c. 6
3. Agriculture (Male)
   - a. 4
   - b. 0
   - c. 0
4. Agriculture (Female)
   - a. 0
   - b. 0
   - c. 0
5. Technology (Male)
   - a. 9
   - b. 1
   - c. 1
6. Graduate (Male)
   - a. 0
   - b. 0
   - c. 0

Question No. 72

Duplication of course content —

A. Course Overlapping —

1.	Psychology 1	Sociology 1, 4
2.	Psychology 81	Business Administration 68
3.	Psychology	Education
4.	Psychology	Education 41
5.	Psychology 37	Psychology 41
6.	Psychology 1	Psychology 47 Education 41
7.	Psychology	Biology Zoology
8.	Psychology	Biology 2
9.	History 1	Sociology 1, 3
10.	History	Government
11.	History 7	History 83
12.	History 19	Physical Science
13.	Sociology 1	Government 5
14.	Sociology	Government
15.	Sociology 44	Psychology 47
16.	Sociology 2	Sociology 43
17.	Advanced English	Literature Survey
18.	English 16	English 79-80
19.	Home Economics 51	Hotel Administration 5 Business Administration 9

20.	Home Economics 25	Education 41
21.	Home Economics 9	Biology 1 Chemistry 3
22.	Business Administration 34	Business Administration 21, 22
23.	Economics 55	Government 67
24.	Botany 3	Bacteriology 1, 3
25.	Botany 56	Bacteriology 5
26.	Botany 6	Forestry 25
27.	French 13-14	French 61-62
28.	Philosophy 1, 2	Physical Science 1, 2
29.	Chemical Engineering 12	Chemical Engineering 71
30.	Civil Engineering 28	Mechanical Engineering 10
31.	Physics 18	Mechanical Engineering 9, 25
32.	Physics 22	Electrical Engineering 1, 2
33.	Physics 21	Mechanical Engineering 9, 2
34.	Physics 18	Mechanical Engineering 25,26
35.	Physics 23	Electrical Engineering 1, 2

36. All Sociology
37. All Business Administration Courses
38. Advanced Economics Courses
39. Economics 53, 56, 58
40. Advanced Chemistry Courses

B. Same courses offered by different departments.

1.	Government 5	History 1, 2
2.	Government 5	Sociology 1 History 1, 2
3.	Mathematics	Statistics
4.	Education 41	Psychology 37
5.	Physics 23	Electrical Engineering
6.	Economics 1, 2	
7.	R.O.T.C. 1, 2	

C. Other courses specified.

1.	Pathology	Bacteriology
2.	Zoology 17	Zoology 8

3. Biology 1, repeat of High School Biology
4. Spanish 3, 13
5. Technology subjects (Junior and Senior)

73. How well do the courses in your major field of study meet your demands, needs, and expectations?

51 a. Completely

119 b. Satisfactorily, though not completely

28 c. Unsatisfactorily

1. L. A. (Male)
a. 14
b. 42
c. 13

4. Agriculture (Female)
a. 1
b. 3
c. 0

2. L. A. (Female)
a. 15
b. 52
c. 9

5. Technology (Male)
a. 13
b. 15
c. 4

3. Agriculture (Male)
a. 6
b. 6
c. 2

6. Graduate (Male)
a. 2
b. 1
c. 0

74. Have you been required to take courses outside of your major department which did not seem to meet your needs? ———— Please list them:

M. E. courses	7	Sociology 1-2	4
R.O.T.C. 1-2		History 1-2	16
Chemistry 1-2	5	Languages	5
Mathematics 7-8	3	Biology 1-2	18
English 1-2	5	Physical Education	4
Geology 1-2		Sociology 33	4

The above list includes all those mentioned more than twice.

75. Do you think there are sufficient opportunities for above-average students to develop their scholastic interests in school?

131 a. Yes

40 b. No

52 c. Don't know

1. L. A. (Male)
a. 46
b. 14
c. 13

4. Agriculture (Female)
a. 3
b. 0
c. 1

2. L. A. (Female)
a. 52
b. 19
c. 26

5. Technology (Male)
a. 18
b. 6
c. 8

3. Agriculture (Male)
a. 10
b. 1
c. 3

6. Graduate (Male)
a. 2
b. 0
c. 1

76. Does specialization on the undergraduate level in your particular field go far enough or get advanced enough?

109 a. Yes

54 b. No

56 c. Don't know

1. L. A. (Male)
a. 30
b. 21
c. 20

4. Agriculture (Female)
a. 3
b. 1
c. 0

2. L. A. (Female)
a. 23
b. 19
c. 32

5. Technology (Male)
a. 16
b. 9
c. 7

3. Agriculture (Male)
a. 3
b. 3
c. 2

6. Graduate (Male)
a. 1
b. 2
c. 0

77. Do you feel there is too much specialization in prescribed curricula?

47 a. Yes

126 b. No

50 c. Don't know

1. L. A. (Male)
   a. 26
   b. 48
   c. 15
2. L. A. (Female)
   a. 21
   b. 40
   c. 26
3. Agriculture (Male)
   a. 2
   b. 10
   c. 2
4. Agriculture (Female)
   a. 2
   b. 2
   c. 0
5. Technology (Male)
   a. 2
   b. 23
   c. 7
6. Graduate (Male)
   a. 0
   b. 3
   c. 0

78. If you answered "Yes" to Question 77, would you favor abolishing prescribed curricula?

22 a. Yes

38 b. No

1. L. A. (Male)
   a. 11
   b. 10
2. L. A. (Female)
   a. 10
   b. 15
3. Agriculture (Male)
   a. 1
   b. 1
4. Agriculture (Female)
   a. 0
   b. 2
5. Technology (Male)
   a. 0
   b. 7
6. Graduate (Male)
   a. 0
   b. 0

79. Please list departments that you feel should be expanded by adding new courses?

Philosophy	15
Business Administration	7
History	11
Humanities	4
Government	8
Biology	7
Languages	25
Psychology	15
Economics	5
Education	13
Arts	9
Sociology	8
Music	5
Physical Education	7
Mathematics	4
"Science"	5
Chemistry	6

The above list includes all those mentioned three or more times.

81. Do you feel our physical training program is satisfactory?

121 a. Yes

79 b. No

1. L. A. (Male)
   a. 32
   b. 36
2. L. A. (Female)
   a. 66
   b. 18
3. Agriculture (Male)
   a. 7
   b. 6
4. Agriculture (Female)
   a. 4
   b. 0
5. Technology (Male)
   a. 12
   b. 18
6. Graduate (Male)
   a. 0
   b. 1

82. If you answered "No" to the last question, please give your reasons in the space below.

COMMENT	*NUMBER*
Should be optional	2
Should be compulsory for all ages	6
Two years for men should be required	1
More facilities are needed	10
More equipment needed	3
More teachers needed	5
More workouts and gymnastics needed	5
Calesthenics each day for all	1
Less should be required for girls	2
Track and field for girls should be required	1
More physical conditioning needed	10
Lack of student interest	3
Waste of time	14
Disorganized	11
Should have swimming test for everyone	1
Should add tumbling, boxing, wrestling, etc.	2
More outside development	1
Exempt those in marching band	1
Should only be required for freshmen	1
No need for third hour for girls	1
Inequality of hours male vs. female	1
Classes not long or often enough	1
Should have co-ed sports	1
People who do not want such courses should be able to use equipment.	1

83. Do you feel that physical training should be required?

134 a. Yes

77 b. No

1. L. A. (Male)
   a. 38
   b. 34
2. L. A. (Female)
   a. 65
   b. 21
3. Agriculture (Male)
   a. 9
   b. 5
4. Agriculture (Female)
   a. 3
   b. 1
5. Technology (Male)
   a. 17
   b. 15
6. Graduate (Male)
   a. 2
   b. 1

84. Do you feel that basic R.O.T.C. should be required?

92 a. Yes

114 b. No

1. L. A. (Male)
   a. 18
   b. 52
2. L. A. (Female)
   a. 57
   b. 29
3. Agriculture (Male)
   a. 5
   b. 8
4. Agriculture (Female)
   a. 3
   b. 0
5. Technology (Male)
   a. 8
   b. 23
6. Graduate (Male)
   a. 1
   b. 2

85. If you think it desirable to clear Thursday afternoon for classes, which of the following times for R.O.T.C. drill periods would you prefer?

12 a. Saturday morning
4 b. Late in the afternoon
8 c. In the evening
137 d. No opinion

1. L. A. (Male)
a. 7
b. 6
c. 4
d. 43

2. L. A. (Female)
a. 4 c. 1
b. 5 d. 60

3. Agriculture (Male)
a. 1
b. 0
c. 1
d. 7

4. Agriculture (Female)
a. 0
b. 0
c. 0
d. 2

5. Technology (Male)
a. 0 c. 2
b. 2 d. 2

6. Graduate (Male)
a. 0
b. 1
c. 0
d. 4

86. How do you feel about the number of required courses in your major?

37 a. Should be more
129 b. No opinion
42 c. Should be fewer

1. L. A. (Male)
a. 13
b. 44
c. 13

2. L. A. (Female)
a. 15
b. 55
c. 14

3. Agriculture (Male)
a. 2
b. 6
c. 7

4. Agriculture (Female)
a. 0
b. 3
c. 1

5. Technology (Male)
a. 7
b. 18
c. 7

6. Graduate (Male)
a. 0
b. 3
c. 0

87. Do you think there should be definite or suggested prerequisites for advanced courses?

41 a. There should be definite prerequisites
59 b. There should be suggested prerequisites
104 c. There should be some definite and some suggested prerequisites
8 d. No opinion

1. L. A. (Male)
a. 15
b. 25
c. 31
d. 2

2. L. A. (Female)
a. 9
b. 24
c. 52
d. 4

3. Agriculture (Male)
a. 2
b. 3
c. 8
d. 0

4. Agriculture (Female)
a. 1
b. 0
c. 2
d. 1

5. Technology (Male)
a. 14
b. 6
c. 8
d. 1

6. Graduate (Male)
a. 0
b. 1
c. 2
d. 0

88. How do you feel about scholastic demands made on you in general?

22 a. Too much work is required; demands should be eased
165 b. The demands are reasonable; no change is needed
23 c. Too little work is required; demands should be tightened

1. L. A. (Male)
a. 5
b. 54
c. 10

2. L. A. (Female)
a. 7
b. 73
c. 10

3. Agriculture (Male)
a. 3
b. 9
c. 1

4. Agriculture (Female)
a. 0
b. 3
c. 1

5. Technology (Male)
a. 7
b. 23
c. 1

6. Graduate (Male)
a. 0
b. 3
c. 0

89. Should courses of a vocational or professional nature emphasize theory or practice?

6 a. Theory
23 b. Practice
178 c. Both

1. L. A. (Male)
a. 4
b. 10
c. 56

2. L. A. (Female)
a. 2
b. 5
c. 78

3. Agriculture (Male)
a. 0
b. 2
c. 11

4. Agriculture (Female)
a. 0
b. 0
c. 4

5. Technology (Male)
a. 0
b. 6
c. 26

6. Graduate (Male)
a. 0
b. 0
c. 3

90. What should the subject matter emphasize in introductory courses in natural and social sciences?

91 a. The theory of the science
92 b. Practical applications of the science
37 c. History of the development of the science

1. L. A. (Male)
a. 31
b. 27
c. 17

2. L. A. (Female)
a. 38
b. 41
c. 13

4. Agriculture (Female)
a. 2
b. 2
c. 0

5. Technology (Male)
a. 13
b. 14
c. 4

3. Agriculture (Male)
a. 5
b. 7
c. 1

6. Graduate (Male)
a. 2
b. 1
c. 2

91. (Especially for students taking courses requiring laboratory work.) Do you feel you need laboratory work to get a good grasp of the course?

143 a. Yes

48 b. No

1. L. A. (Male)
a. 43
b. 18

4. Agriculture (Female)
a. 2
b. 2

2. L. A. (Female)
a. 65
b. 14

5. Technology (Male)
a. 19
b. 13

3. Agriculture (Male)
a. 11
b. 1

6. Graduate (Male)
a. 3
b. 0

92. Which of the following types of classroom procedure do you feel benefits you most?

34 a. Lecture

9 b. Discussion

170 c. Both (combination)

1. L. A. (Male)
a. 9
b. 3
c. 59

4. Agriculture (Female)
a. 0
b. 0
c. 4

2. L. A. (Female)
a. 19
b. 2
c. 67

5. Technology (Male)
a. 4
b. 2
c. 27

3. Agriculture (Male)
a. 1
b. 1
c. 11

6. Graduate (Male)
a. 1
b. 0
c. 2

93. Do you think faculty members have to spend too much time acting as student advisors?

22 a. Yes

178 b. No

1. L. A. (Male)
a. 7
b. 62

4. Agriculture (Female)
a. 1
b. 3

2. L. A. (Female)
a. 13
b. 67

5. Technology (Male)
a. 0
b. 30

3. Agriculture (Male)
a. 0
b. 14

6. Graduate (Male)
a. 1
b. 2

94. (Engineering students.) Do you favor a 4-year or 5-year program?

11 a. 4-year

18 b. 5-year

5. Technology (Male)
a. 11
b. 17

6. Graduate (Male)
a. 0
b. 1

95. (Engineering students.) If you prefer a 5-year program, which kind of course work do you think the extra year should be used to provide?

7 a. Liberal arts courses

12 b. Engineering courses

5. Technology (Male)
a. 7
b. 11

6. Graduate (Male)
a. 0
b. 1

96. (Engineering students.) If you favored more engineering courses in your answer to Question 95, which of the following would you like them to be?

9 a. Specialized, giving particular information

4 b. General, giving insights into the overall problem

5. Technology (Male)
a. 9
b. 3

6. Graduate (Male)
a. 0
b. 1

97. (Engineering students.) How do you feel about the number of Liberal Arts courses you are required to take?

10 a. Should be more L.A. courses required

11 b. Just about the right number of L.A. courses required

8 c. Should be fewer L.A. courses required

5. Technology (Male)
a. 9
b. 10
c. 8

6. Graduate (Male)
a. 1
b. 1
c. 0

98. (Engineering students.) Should there be special instructors on the faculty of the College of Technology to teach Liberal arts subjects to engineering students, or should engineering students continue to go to the College of Liberal Arts for these courses?

9 a. College of Technology should have its own liberal arts instructors

22 b. Engineering students should continue to take these courses in the College of Liberal Arts

5. Technology (Male)
a. 8
b. 21

6. Graduate (Male)
a. 1
b. 1

99. Should the University offer:

0 a. All 2-credit courses

14 b. All 3-credit courses

1 c. All 4-credits courses

196 d. A combination of the above

1. L. A. (Male)
   a. 0
   b. 7
   c. 0
   d. 62

2. L. A. (Female)
   a. 0
   b. 4
   c. 1
   d. 84

3. Agriculture (Male)
   a. 0
   b. 0
   c. 0
   d. 14

4. Agriculture (Female)
   a. 0
   b. 0
   c. 0
   d. 4

5. Technology (Male)
   a. 0
   b. 3
   c. 0
   d. 29

6. Graduate (Male)
   a. 0
   b. 0
   c. 0
   d. 3

100. How do you feel about the number of remedial courses that are available?

24 a. Too many remedial courses; some should be abolished

132 b. Just about the right number of remedial courses

41 c. Too few remedial courses; more should be added

1. L. A. (Male)
   a. 11
   b. 43
   c. 14

2. L. A. (Female)
   a. 10
   b. 54
   c. 18

3. Agriculture (Male)
   a. 1
   b. 10
   c. 3

4. Agriculture (Female)
   a. 0
   b. 4
   c. 0

5. Technology (Male)
   a. 1
   b. 20
   c. 8

6. Graduate (Male)
   a. 1
   b. 1
   c. 0

101. If you chose a. or c. in the last question, please use the space below to specify the fields which you would abolish or add remedial courses.

ABOLISH			
All	5		
English A	18		
ADD IN			
Chemistry	5		
Mathematics	13	Electrical Engineering	2
Reading	3	Languages	5
Writing	4	History	2
English	3	Biology	4
Sciences	7	Study Habits	3

102. How well do you feel your high or preparatory school prepared you for college?

51 a. Very well

86 b. Fairly well

25 c. Neither

31 d. Rather poorly

16. e. Very poorly

1. L. A. (Male)
   a. 12
   b. 32
   c. 12
   d. 11
   e. 4

2. L. A. (Female)
   a. 29
   b. 29
   c. 7
   d. 11
   e. 4

3. Agriculture (Male)
   a. 2
   b. 5
   c. 2
   d. 2
   e. 2

4. Agriculture (Female)
   a. 2
   b. 1
   c. 0
   d. 1
   e. 0

5. Technology (Male)
   a. 6
   b. 17
   c. 3
   d. 6
   e. 1

6. Graduate (Male)
   a. 0
   b. 2
   c. 1
   d. 0
   e. 0

103. Some comprehensive exams, like those given in foreign languages, exempt the student from taking the course. Should they be given in more courses?

142 a. Yes

62 b. No

1. L. A. (Male)
   a. 50
   b. 21

2. L. A. (Female)
   a. 54
   b. 31

3. Agriculture (Male)
   a. 9
   b. 3

4. Agriculture (Female)
   a. 3
   b. 1

5. Technology (Male)
   a. 23
   b. 6

6. Graduate (Male)
   a. 3
   b. 0

104. Should students who pass such comprehensive exams be given credit for the course without having to take it?

86 a. No

82 b. Yes, but only in basic or introductory courses

36 c. Yes, in all courses

1. L. A. (Male)
   a. 32
   b. 32
   c. 8

2. L. A. (Female)
   a. 41
   b. 26
   c. 16

3. Agriculture (Male)
   a. 2
   b. 7
   c. 3

4. Agriculture (Female)
   a. 1
   b. 3
   c. 0

5. Technology (Male)
   a. 9
   b. 13
   c. 8

6. Graduate (Male)
   a. 1
   b. 1
   c. 1

105. Should provision for independent study be made for:

14 a. Seniors only
32 b. Upperclassmen in general
6 c. No undergrads
152 d. All students with appropriate qualifications

1. L. A. (Male)
    a. 8
    b. 13
    c. 1
    d. 48

2. L. A. (Female)
    a. 2
    b. 8
    c. 3
    d. 69

3. Agriculture (Male)
    a. 1
    b. 4
    c. 1
    d. 6

4. Agriculture (Female)
    a. 0
    b. 0
    c. 0
    d. *

5. Technology (Male)
    a. 2
    b. 5
    c. 1
    d. 21

6. Graduate (Male)
    a. 1
    b. 2
    c. 0
    d. 4

106. List below any fields which UNH does not offer a major, but in which you believe it should offer a major.

Summary of Answers

1. Elementary Education — 21
2. Public Relations — 2
3. Philosophy — 17
4. Physical Therapy — 8
5. Russian — 7
6. Architecture or Architectural Engineering — 6
7. Drama — 2
8. Aeronautical Engineering — 5
6. Architecture or Architectural Engineering — 6
10. Physical Education — 4
11. Religion or Theology — 4
12. Geography — 4
13. Industrial Psychology or Relations — 3
14. Electronic Engineering — 3
15. Nursing — 3
16. Journalism — 13
17. Pre-Law — 2
18. Medicine — 2

These were all that received more than one mention. Elementary Education, Philosophy, and Journalism seem to be most popular.

107. List below any majors now offered which you think are unnecessary and should be abolished.

Summary of Results

1. Music — 1
2. Secretarial Studies — 4
3. Arts — 1
4. Occupational Therapy — 1
5. Home Economics — 1
6. Hotel Administration — 1
7. Agricultural Engineering — 1

108. If you made any answers to 106 and 107 please use the space below to briefly give your reason.

Typical Comments

1. Speech and Dramatics are common in other schools, we have the student's interest, teachers and courses, why not a major?

2. A shortage of medical services exists in New Hampshire, it should be able to produce its own doctors.

3. Elementary Education is not offered. Many would like to go into this field of teaching. If elementary education can be offered in summer school, why not as a major during the rest of the school year? Elementary Education is just as important as Secondary Education.

4. A major in Journalism would provide for more writers in T.V., radio, and advertising. It would also attract more competent students to UNH, and establish a greater respect for this school.

5. Philosophy is growing in importance along with social sciences and a state university should offer a major in it.

6. Secretarial courses are important and should be offered, but they are not important enough to allow anyone to spend 24 semester credits or more in this area when they could benefit more from putting this time in other fields.

7. This is a University, not a business school. This curriculum tends to be a refuge for husband hunting girls. (Re: Secretarial Studies.)

109. How do you feel about the number of credits required for graduation?

10 a. Too few; should be more credits required
178 b. Just about right
15 c. Too many; should be fewer credits required

1. L. A. (Male)
    a. 6
    b. 60
    c. 5

2. L. A. (Female)
    a. 2
    b. 77
    c. 6

3. Agriculture (Male)
    a. 0
    b. 11
    c. 1

4. Agriculture (Female)
    a. 0
    b. 4
    c. 0

5. Technology (Male)
    a. 2
    b. 25
    c. 3

6. Graduate (Male)
    a. 0
    b. 2
    c. 0

110. When should one be required to declare a major?

5 a. On entering college
2 b. After first semester
35 c. After second semester
45 d. After third semester
104 e. After fourth semester
16 f. Later than this

1. L. A. (Male)
a. 2
b. 1
c. 5
d. 14
e. 41
f. 8

2. L. A. (Female)
a. 0
b. 0
c. 12
d. 22
e. 52
f. 1

3. Agriculture (Male)
a. 0
b. 0
c. 3
d. 1
e. 5
f. 2

4. Agriculture (Female)
a. 0
b. 0
c. 2
d. 0
e. 0
f. 2

5. Technology (Male)
a. 3
b. 1
c. 12
d. 8
e. 5
f. 2

6. Graduate (Male)
a. 0
b. 0
c. 1
d. 0
e. 1
f. 1

111. Would you favor replacing the present semester system with a quarterly system of dividing the school year? Or trimester?

28 a. Quarterly
68 b. Trimester
109 c. No change
24 d. Don't know

1. L. A. (Male)
a. 12
b. 17
c. 49
d. 7

2. L. A. (Female)
a. 10
b. 34
c. 37
d. 4

3. Agriculture (Male)
a. 3
b. 4
c. 3
d. 1

4. Agriculture (Female)
a. 0
b. 1
c. 4
d. 0

5. Technology (Male)
a. 3
b. 10
c. 16
d. 2

6. Graduate (Male)
a. 0
b. 2
c. 0
d. 0

112. Are courses revised often enough to keep them up to date in most cases?

175 a. Yes
23 b. No

1. L. A. (Male)
a. 59
b. 6

2. L. A. (Female)
a. 78
b. 5

3. Agriculture (Male)
a. 11
b. 1

4. Agriculture (Female)
a. 4
b. 0

5. Technology (Male)
a. 20
b. 11

6. Graduate (Male)
a. 3
b. 0

APPENDIX 4

Professor Durgin's Medium Estimate of Future Enrollments

Academic Year	Est. In-state Admissions	Actual In-state Admissions	In-state Under-graduates	Est. Total Enrollment
56-57	624	634	1930	3183
57-58	639	601	1975	3235
58-59	654	695	2022	3288
59-60	669	641	2069	3342
60-61	685	703 (est.)	2118	3398
61-62	701		2176	3465
62-63	718		2246	3545
63-64	735		2326	3637
64-65	865		2614	3966
65-66	885		2893	4024
66-67	906		3178	4184
67-68	927		3469	4567
68-69	949		3571	4703
69-70	971		3693	4863
70-71	994		3818	5028
71-72	1017		3946	5196
72-73	1041		4077	5369

APPENDIX 5

Dartmouth College Independent Reading Program List

Freshman Year

One of each pair:

(a) Homer, *The Iliad*
(b) Homer, *The Odyssey*

(a) Heilbroner, *The Worldly Philosophers*
(b) Kluckhohn, *Mirror for Man*

(a) Gamow, *Biography of the Earth*
(b) Schrodinger, *What Is Life? and Other Scientific Essays*

Three of these:

Classics of Literature and History

1. Lind, *Ten Greek Plays in Contemporary Translations*
2. Xenophon, *The Persian Expedition*
3. Thucydides, *The Peloponnesian War*
4. Vergil, *The Aeneid*
5. *Beowulf*
6. Chaucer, *The Canterbury Tales*
7. Froissart, *Chronicles of England, France, and Spain*
8. *The Cid*
9. del Castillo, *The Discovery and Conquest of Mexico*
10. Kazantzakis, *The Odyssey, A Modern Sequel*

Books on Science and Its Impact on Modern Life

1. Barnett, *The Universe and Doctor Einstein*
2. Carson, *Under the Sea Wind*
3. Gamow, *One, Two, Three . . . Infinity*
4. Hoyle, *The Nature of the Universe*
5. The Editors of the *Scientific American*, *Lives in Science**
6. *The Physics and Chemistry of Life*
7. *The Universe*
8. *Plant Life*
9. *The Planet Earth*
10. *The New Astronomy*
11. *New Chemistry*
12. Poincare, *Science and Hypothesis*

Books on Philosophical, Social, and Cultural Topics

1. Adams, *The Political Writings of John Adams*
2. Albright, *From the Stone Age to Christianity*
3. Cash, *The Mind of the South*
4. Chase, *The Proper Study of Mankind*
5. Dean, *The Nature of the Non-Western World*
6. Edman, *Fountainheads of Freedom*
7. Hofstadter, *The American Political Tradition*
8. Hook, *Marx and Marxists: The Ambiguous Legacy*
9. Jefferson, *Life and Selected Writings*
10. Menninger, *Man Against Himself*
11. Orwell, *Homage to Catalonia*
12. Schweitzer, *Out of My Life and Thought*
13. Unamuno, *The Tragic Sense of Life, In Men and in Peoples*
14. Brinton, *Anatomy of Revolution*

Books on the Meaning and Direction of Education

1. Conant, *Citadel of Learning*
2. Conant, *Education and Liberty*
3. *General Education in A Free Society*, Harvard Committee
4. Hutchins, *Conflict in Education*
5. Jacks, *Education of the Whole Man*
6. Korol, *Soviet Education for Science and Technology*
7. Maritain, *Education at the Crossroads*
8. Niblett, *Education, The Lost Dimension*
9. Truscott, *Redbrick University*
10. Whitehead, *The Aims of Education*

Miscellaneous Books

1. Maritain, *Creative Intuition in Art and Poetry*
2. Barzun, *Berlioz and His Century*
3. Darwin, *The Voyage of the Beagle*

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* This book and the next six on the list consist of essays which originally appeared in the distinguished scientific magazine.

Sophomore Year

One of each pair:

- (a) Plato, "Apology," "Crito," "Meno," and "Symposium"
- (b) Waley, *Three Ways of Thought in Ancient China*
- (a) Wilson, *To the Finland Station*
- (b) Hofstadter, *Social Darwinism in American Thought*
- (a) Einstein and Infeld, *The Evolution of Modern Physics*
- (b) Beck, *Modern Science and the Nature of Life*

Three of these:

CLASSICS OF LITERATURE AND HISTORY

1. Dante, *The Inferno*
2. de Cervantes, *Don Quixote*
3. Milton, *Paradise Lost*
4. Gibbon, *The Decline and Fall of the Roman Empire*
5. Von Goethe, *Faust*
6. Melville, *Moby Dick*
7. Dostoievsky, *The Idiot*
8. Mann, *The Magic Mountain*
9. Camus, *The Plague*
10. Pasternak, *Doctor Zhivago*

BOOKS ON SCIENCE AND ITS IMPACT ON MODERN LIFE

1. Burtt, *The Metaphysical Foundations of Modern Science*
2. Conant, *Modern Science and Modern Man*
3. Hall, *The Scientific Revolution*
4. Hooper, *Makers of Mathematics*
5. Oppenheimer, *The Open Mind*
6. Oppenheimer, *Science and the Common Understanding*
7. Peierls, *The Laws of Nature*
8. Jungk, *Brighter Than a Thousand Suns*
9. Russell, *The Impact of Science on Society*
10. Schrodinger, *Science and Humanism*
11. Wiener, *The Human Use of Human Beings*
12. Whitehead, *Science and the Modern World*

BOOKS ON PHILOSOPHICAL, SOCIAL, AND CULTURAL TOPICS

1. Brinton, *The Shaping of the Modern Mind*
2. de Tocqueville, *Democracy in America*, Vol. I
3. de Tocqueville, *Democracy in America*, Vol. II
4. Frankel, *The Case for Modern Man*
5. Freud, *General Introduction to Psychoanalysis*
6. James, *Pragmatism*
7. Maritain, *Man and the State*
8. Moore, *Ethics*
9. Niebuhr, *Faith and History*
10. Pratt, *The Logic of Psychology*
11. Russell, *Problems of Philosophy*
12. Sachs, *Black Anger*
13. Buber, *The Writings of Martin Buber*
14. Acton, *Essays on Freedom and Power*
15. Childe, *What Happened in History?*
16. Gandhi, *Gandhi's Autobiography: The Story of My Experiments with Truth*
17. Malinowski, *Magic, Science, and Religion*
18. Mead, *Male and Female*
19. Rose, *The Negro in America*
20. Williams, *In the American Grain*

MISCELLANEOUS BOOKS

1. Barzun, *Darwin, Marx, and Wagner*
2. Eisenstein, *Film Form and Film Sense*
3. Hamilton, *The Greek Way to Western Civilization*
4. Kissinger, *Nuclear Weapons and Foreign Policy*
5. Mumford, *From the Ground Up*
6. Read, *The Philosophy of Modern Art*
7. Stravinsky, *The Poetics of Music*
8. Suetonius, *Twelve Caesars*

Note: Books for juniors and seniors are recommended by the student's major professor.